



MEASUREMENT REPORT FCC Part 22, 24 & 27

Applicant Name:
 Samsung Electronics Co., Ltd.
 416 Maetan 3-Dong, Yeongtong-gu
 Suwon-si, Gyeonggi-do
 443-742, Republic of Korea

Date of Testing:
 Aug. 20 - Sept. 7, 2012
Test Site/Location:
 PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
 0Y1208291264.A3L

FCC ID :	A3LSGHI317
IC CERT. NO.:	649E-SGHI317
APPLICANT:	SAMSUNG ELECTRONICS CO., LTD.

Application Type: Certification
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §2; §22; §24; §27
EUT Type: Portable Handset
Model(s): SGH-I317
Test Device Serial No.: identical prototype [S/N: #164]



Mode	Tx Frequency (MHz)	Emission Designator	Modulation	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 17	706.5 - 713.5	4M50G7D	QPSK	0.135	21.290
LTE Band 17	706.5 - 713.5	4M49W7D	16QAM	0.107	20.310
LTE Band 17	709 - 711	8M89G7D	QPSK	0.139	21.420
LTE Band 17	709 - 711	8M91W7D	16QAM	0.115	20.590
LTE Band 5	826.5 - 846.5	4M46G7D	QPSK	0.054	17.286
LTE Band 5	826.5 - 846.5	4M47W7D	16QAM	0.042	16.216
LTE Band 5	829 - 844	8M93G7D	QPSK	0.065	18.096
LTE Band 5	829 - 844	8M91W7D	16QAM	0.048	16.836
LTE Band 4	1712.5 - 1752.5	4M51G7D	QPSK	0.336	25.268
LTE Band 4	1712.5 - 1752.5	4M51W7D	16QAM	0.272	24.348
LTE Band 4	1715 - 1750	8M94G7D	QPSK	0.347	25.408
LTE Band 4	1715 - 1750	8M91W7D	16QAM	0.258	24.108
LTE Band 4	1717.5 - 1747.5	13M4G7D	QPSK	0.399	26.008
LTE Band 4	1717.5 - 1747.5	13M4W7D	16QAM	0.296	24.718
LTE Band 4	1720 - 1745	17M9G7D	QPSK	0.402	26.037
LTE Band 4	1720 - 1745	17M9W7D	16QAM	0.307	24.877
LTE Band 2	1852.5 - 1907.5	4M47G7D	QPSK	0.152	21.826
LTE Band 2	1852.5 - 1907.5	4M48W7D	16QAM	0.117	20.696
LTE Band 2	1855 - 1905	8M93G7D	QPSK	0.107	20.276
LTE Band 2	1855 - 1905	8M92W7D	16QAM	0.080	19.056
LTE Band 2	1857.5 - 1902.5	13M4G7D	QPSK	0.167	22.216
LTE Band 2	1857.5 - 1902.5	13M4W7D	16QAM	0.131	21.166
LTE Band 2	1860 - 1900	17M9G7D	QPSK	0.130	21.146
LTE Band 2	1860 - 1900	17M9W7D	16QAM	0.099	19.936

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested. Test results reported herein relate only to the item(s) tested. I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.




 Randy Ortanez
 President

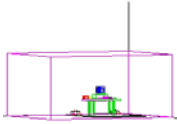


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MEASUREMENT REPORT

FCC Part 22, 24 & 27

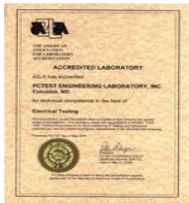


§2.1033 General Information



APPLICANT: Samsung Electronics Co., Ltd.
APPLICANT ADDRESS: 416 Maetan 3-Dong, Yeongtong-gu
 Suwon-si, Gyeonggi-do, 443-742 , Republic of Korea
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 7185 Oakland Mills Road, Columbia, MD 21046 USA
FCC RULE PART(S): §2; §22; §24; §27
BASE MODEL: SGH-I317
FCC ID: A3LSGHI317
FCC CLASSIFICATION: PCS Licensed Transmitter Held to Ear (PCE)
FREQUENCY TOLERANCE: ±0.00025 % (2.5 ppm) for Band 5, within frequency block for Bands 2, 5 and 17
Test Device Serial No.: #164 Production Pre-Production Engineering
DATE(S) OF TEST: Aug. 20 - Sept. 7, 2012
TEST REPORT S/N: 0Y1208291264.A3L

Test Facility / Accreditations

Measurements were performed at **PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.**



- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003/2009 on February 15, 2012.

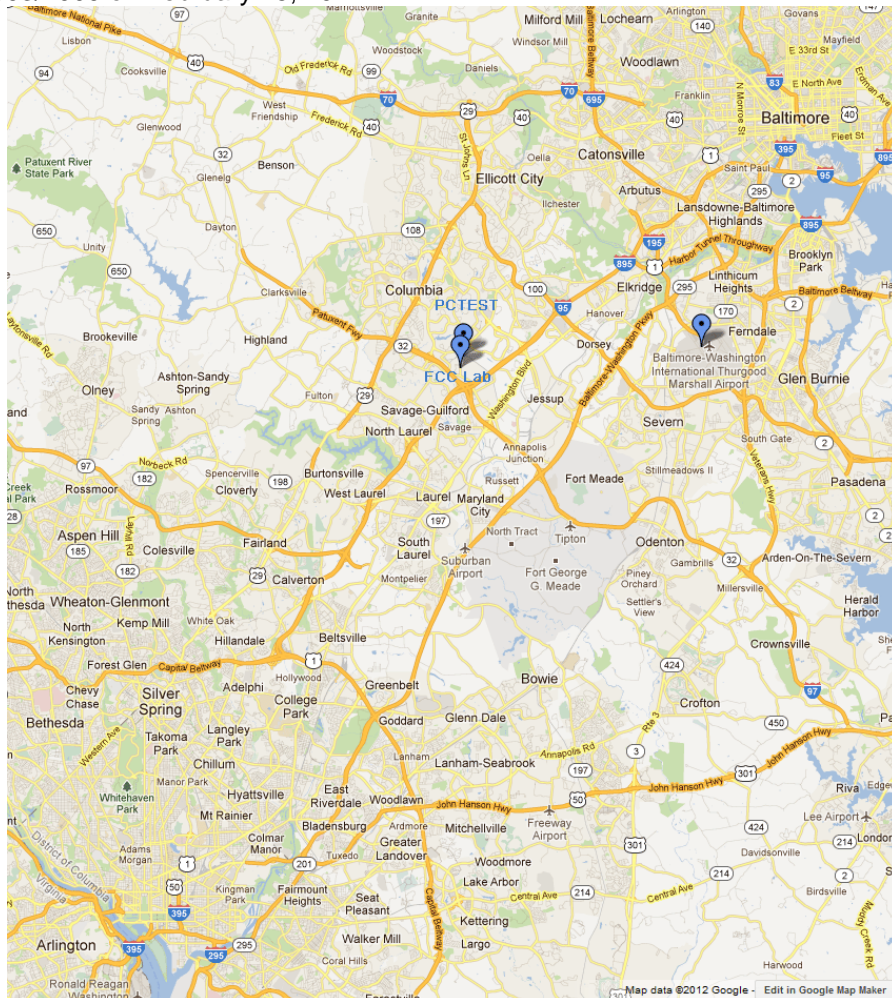


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSGHI317**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Samsung / Model: SGH-I317	A3LSGHI317	Portable Handset

Table 2-1. EUT Equipment Description

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Band 2, 4, 5, 17 LTE, 802.11a/b/g/n WLAN (DTS/NII), Bluetooth (1x, EDR, LE), NFC

2.3 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

2.4 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase..



Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-C-2004) was used in the measurement of the **Samsung Electronics Co., Ltd. Portable Handset FCC ID: A3LSGHI317**

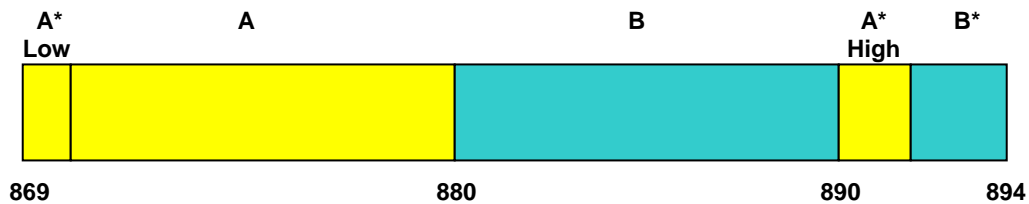
3.2 Block A Frequency Range

§27.5(c)

698-746 MHz band. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz;
 Block B: 704-710 MHz and 734-740 MHz; and
 Block C: 710-716 MHz and 740-746 MHz.

3.3 Cellular - Base Frequency Blocks



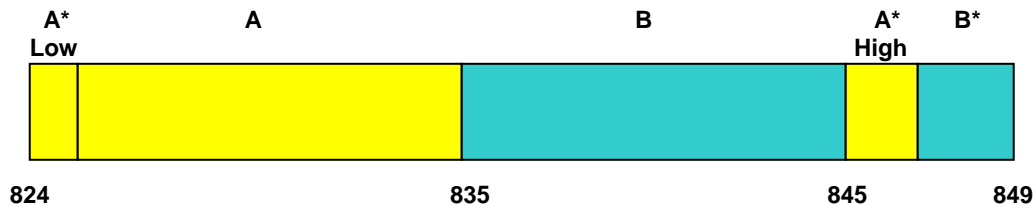
BLOCK 1: 869 – 880 MHz (A* Low + A)

BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 4: 891.5 – 894 MHz (B*)

3.4 Cellular - Mobile Frequency Blocks





BLOCK 1: 824 – 835 MHz (A* Low + A)

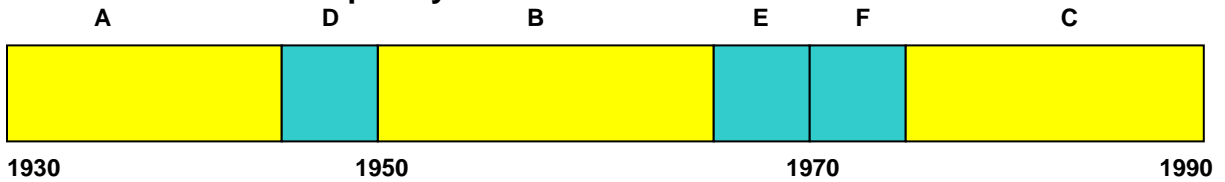
BLOCK 3: 845 – 846.5 MHz (A* High)

BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B*)

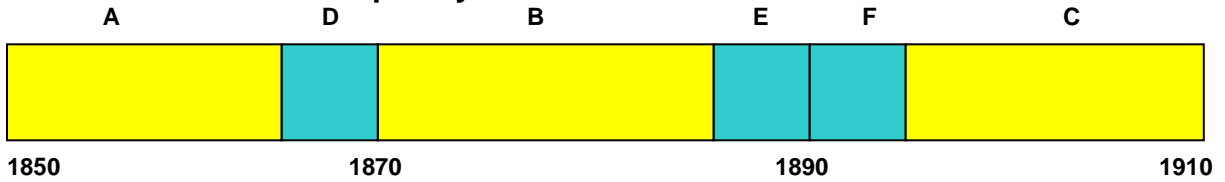
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3.5 PCS - Base Frequency Blocks



- BLOCK 1: 1930 – 1945 MHz (A)
- BLOCK 2: 1945 – 1950 MHz (D)
- BLOCK 3: 1950 – 1965 MHz (B)
- BLOCK 4: 1965 – 1970 MHz (E)
- BLOCK 5: 1970 – 1975 MHz (F)
- BLOCK 6: 1975 – 1990 MHz (C)

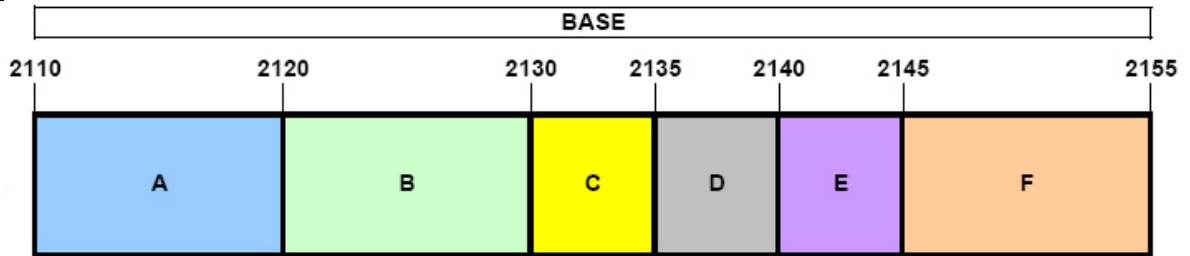
3.6 PCS - Mobile Frequency Blocks



- BLOCK 1: 1850 – 1865 MHz (A)
- BLOCK 2: 1865 – 1870 MHz (D)
- BLOCK 3: 1870 – 1885 MHz (B)
- BLOCK 4: 1885 – 1890 MHz (E)
- BLOCK 5: 1890 – 1895 MHz (F)
- BLOCK 6: 1895 – 1910 MHz (C)

3.7 AWS - Base Frequency Blocks

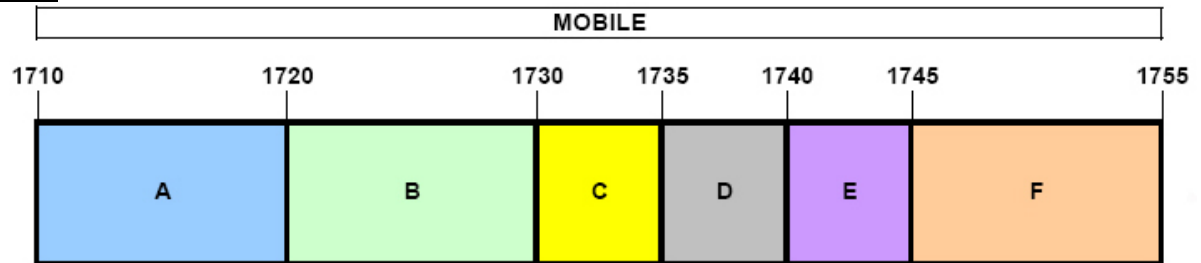
§27.5(h)



- BLOCK 1: 2110 – 2120 MHz (A)
- BLOCK 2: 2120 – 2130 MHz (B)
- BLOCK 3: 2130 – 2135 MHz (C)
- BLOCK 4: 2135 – 2140 MHz (D)
- BLOCK 5: 2140 – 2145 MHz (E)
- BLOCK 6: 2145 – 2155 MHz (F)

3.8 AWS - Mobile Frequency Blocks

§27.5(h)



- BLOCK 1: 1710 – 1720 MHz (A)
- BLOCK 2: 1720 – 1730 MHz (B)
- BLOCK 3: 1730 – 1735 MHz (C)
- BLOCK 4: 1735 – 1740 MHz (D)
- BLOCK 5: 1740 – 1745 MHz (E)
- BLOCK 6: 1745 – 1755 MHz (F)

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3.9 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

The implementation of this test is performed by the spectrum analyzer's occupied bandwidth function. The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

3.10 Spurious and Harmonic Emissions at Antenna Terminal



§2.1051, 22.917(a), 24.238(a)(b); RSS-132 (4.5.1), RSS-133 (6.5.1), §27.53(g)(h)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

3.11 Peak-Average Ratio

§24.232(d), §27.50(d)(5), RSS-133 (6.4)

A peak to average ratio measurement is performed at the conducted port of the EUT. For LTE signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

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3.12 Radiated Power and Radiated Spurious Emissions

§2.1053, 22.913(a)(2), 22.917(a), 24.232(c), 24.238(a); RSS-132 (4.5.1), RSS-133 (6.5.1)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An ETS Lindgren Model 2188 raised turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 78cm high PVC support structure is placed on top of the turntable. A ¾" (~1.9cm) sheet of high density polyethylene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.



The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168.

Per the guidance of ANSI/TIA-603-C-2004, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_d \text{ [dBm]} = P_g \text{ [dBm]} - \text{cable loss [dB]} + \text{antenna gain [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_g \text{ [dBm]} - \text{cable loss [dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of $43 + 10\log_{10}(\text{Power}_{\text{[Watts]}})$ specified in 22.917(a) and 24.238(a).

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3.13 Frequency Stability / Temperature Variation

§2.1055, 22.355, 24.235, §27.54, RSS-132 (4.3), RSS-133 (6.3)



The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block for Part 24 and 27. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency for Part 22.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A sufficient stabilization period at each temperature shall be used prior to each frequency requirement.

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4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	LTX1	Licensed Transmitter Cable Set	1/25/2012	Annual	1/25/2013	N/A
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	7/10/2012	Annual	7/10/2013	N/A
Agilent	8447D	Broadband Amplifier	5/8/2012	Annual	5/8/2013	1937A03348
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Anritsu	MA2411B	Power Sensor	3/5/2012	Annual	3/5/2013	846215
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Espec	ESX-2CA	Environmental Chamber	4/4/2012	Annual	4/4/2013	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Biennial	7/22/2013	125518
Mini-Circuits	VHF-3100+	High Pass Filter	1/15/2012	Annual	1/15/2013	30841
Rohde & Schwarz	TS-PR18	1-18 GHz Pre-Amplifier	6/26/2012	Annual	6/26/2013	100071
Rohde & Schwarz	ESU26	EMI Test Receiver	12/15/2011	Annual	12/15/2012	100342
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	N/A	Annual	N/A	102060
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/14/2011	Biennial	11/14/2013	9105-2404
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	11/14/2011	Biennial	11/14/2013	9105-2403
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107

Table 4-1. Test Equipment

Note: Rohde & Schwarz Model: CMW500 was used for signaling purposes only and not for calibrated measurements. Care was taken to ensure that testing occurred while test equipment was in calibration.

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5.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz
 G = Phase Modulation
 7 = Quantized/Digital Info
 D = Amplitude/Angle Modulated

16QAM Modulation



Emission Designator = 8M45W7D

LTE BW = 8.45 MHz
 W = Amplitude/Angle Modulated
 7 = Quantized/Digital Info
 D = Combination (Audio/Data)

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average receive power meter reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-24.80).

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6.0 TEST RESULTS

6.1 Summary



Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSGHI317
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)						
2.1049	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 22.917(a), 24.238(a), 27.53(g), 27.53(h)	RSS-133 (6.5.1)	Band Edge / Conducted Spurious Emissions	< 43 + 10log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0
24.232(d), 27.50(d)(5)	RSS-133 (6.4)	Peak-Average Ratio	< 13 dB		PASS	Section 7.0
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	SAR Report
22.913(a)(2)	RSS-132 (4.4) [SRSP-503(5.1.3)]	Effective Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 6.2
27.50(c)(10)	N/A	Effective Radiated Power (Band 17)	< 3 Watts max. ERP		PASS	Section 6.2
24.232(c)	RSS-133 (6.4) [SRSP-510 (5.1.2)]	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP		PASS	Section 6.3
27.50(d)(4)	RSS-139 (6.4)	Equivalent Isotropic Radiated Power (Band 4)	< 1 Watts max. EIRP		PASS	Section 6.3
2.1053, 22.917(a), 24.238(a), 27.53(g), 27.53(h)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Undesirable Emissions	< 43 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.4, 6.5, 6.6, 6.7
2.1055, 27.54, 22.355, 24.235	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	< 2.5 ppm		PASS	Section 6.8, 6.9, 6.10, 6.11

Table 6-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Sections 7.0 were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

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6.2 Effective Radiated Power Output Data

§22.913(a)(2), §27.50(c)(10).

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBd]	PoI [H/V]	ERP [dBm]	ERP [Watts]	Margin [dB]
706.50	5	QPSK	Standard	25 / 0	21.30	-0.85	V	20.45	0.111	-14.32
710.00	5	QPSK	Standard	12 / 6	22.14	-0.85	V	21.29	0.135	-13.48
713.50	5	QPSK	Standard	12 / 6	22.00	-0.85	V	21.15	0.130	-13.62
706.50	5	16-QAM	Standard	25 / 0	20.29	-0.85	V	19.44	0.088	-15.33
710.00	5	16-QAM	Standard	12 / 6	21.13	-0.85	V	20.28	0.107	-14.49
713.50	5	16-QAM	Standard	12 / 6	21.16	-0.85	V	20.31	0.107	-14.46
709.00	10	QPSK	Standard	1 / 49	22.27	-0.85	V	21.42	0.139	-13.35
710.00	10	QPSK	Standard	25 / 12	22.04	-0.85	V	21.19	0.132	-13.58
711.00	10	QPSK	Standard	25 / 12	21.95	-0.85	V	21.10	0.129	-13.67
709.00	10	16-QAM	Standard	1 / 49	21.44	-0.85	V	20.59	0.115	-14.18
710.00	10	16-QAM	Standard	25 / 12	20.94	-0.85	V	20.09	0.102	-14.68
711.00	10	16-QAM	Standard	25 / 12	20.98	-0.85	V	20.13	0.103	-14.64



Table 6-2. Effective Radiated Power Output Data (Band 17)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBd]	PoI [H/V]	ERP [dBm]	ERP [Watts]	Margin [dB]
826.50	5	QPSK	Standard	1 / 0	18.12	-0.83	H	17.29	0.054	-21.16
836.50	5	QPSK	Standard	1 / 24	15.88	-0.80	H	15.08	0.032	-23.37
846.50	5	QPSK	Standard	1 / 0	14.83	-0.77	H	14.06	0.025	-24.39
826.50	5	16-QAM	Standard	1 / 0	17.05	-0.83	H	16.22	0.042	-22.23
836.50	5	16-QAM	Standard	1 / 24	14.45	-0.80	H	13.65	0.023	-24.80
846.50	5	16-QAM	Standard	1 / 0	13.93	-0.77	H	13.16	0.021	-25.29
829.00	10	QPSK	Standard	1 / 0	18.93	-0.83	H	18.10	0.065	-20.35
836.50	10	QPSK	Standard	1 / 0	16.56	-0.80	H	15.76	0.038	-22.69
844.00	10	QPSK	Standard	1 / 0	16.12	-0.77	H	15.35	0.034	-23.10
829.00	10	16-QAM	Standard	1 / 0	17.67	-0.83	H	16.84	0.048	-21.61
836.50	10	16-QAM	Standard	1 / 0	15.79	-0.80	H	14.99	0.032	-23.46
844.00	10	16-QAM	Standard	1 / 0	15.06	-0.77	H	14.29	0.027	-24.16

Table 6-3. Effective Radiated Power Output Data (Band 5)

NOTES:



This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation and 10MHz channel bandwidth. The worst case test configuration was found in the vertical setup for Band 17 and the horizontal setup for Band 5. The data reported in the table above was measured in this test setup.

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6.3 Equivalent Isotropic Radiated Power Output Data §24.232(c); §27.50(d)(4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1712.50	5	QPSK	Standard	1 / 24	15.72	8.47	H	24.19	0.262	-5.81
1732.50	5	QPSK	Standard	1 / 24	15.88	8.54	H	24.42	0.277	-5.58
1752.50	5	QPSK	Standard	1 / 24	16.67	8.60	H	25.27	0.336	-4.73
1712.50	5	16-QAM	Standard	1 / 24	14.89	8.47	H	23.36	0.217	-6.64
1732.50	5	16-QAM	Standard	1 / 24	15.05	8.54	H	23.59	0.229	-6.41
1752.50	5	16-QAM	Standard	1 / 24	15.75	8.60	H	24.35	0.272	-5.65
1715.00	10	QPSK	Standard	1 / 49	16.37	8.47	H	24.84	0.305	-5.16
1732.50	10	QPSK	Standard	1 / 49	16.17	8.54	H	24.71	0.296	-5.29
1750.00	10	QPSK	Standard	1 / 0	16.81	8.60	H	25.41	0.347	-4.59
1715.00	10	16-QAM	Standard	1 / 49	15.15	8.47	H	23.62	0.230	-6.38
1732.50	10	16-QAM	Standard	1 / 49	15.42	8.54	H	23.96	0.249	-6.04
1750.00	10	16-QAM	Standard	1 / 0	15.51	8.60	H	24.11	0.258	-5.89
1717.50	15	QPSK	Standard	1 / 74	16.51	8.47	H	24.98	0.315	-5.02
1732.50	15	QPSK	Standard	1 / 74	16.62	8.54	H	25.16	0.328	-4.84
1747.50	15	QPSK	Standard	1 / 74	17.41	8.60	H	26.01	0.399	-3.99
1717.50	15	16-QAM	Standard	1 / 74	15.61	8.47	H	24.08	0.256	-5.92
1732.50	15	16-QAM	Standard	1 / 74	15.84	8.54	H	24.38	0.274	-5.62
1747.50	15	16-QAM	Standard	1 / 74	16.12	8.60	H	24.72	0.296	-5.28
1720.00	20	QPSK	Standard	1 / 99	17.57	8.47	H	26.04	0.402	-3.96
1732.50	20	QPSK	Standard	1 / 0	17.20	8.54	H	25.74	0.375	-4.26
1745.00	20	QPSK	Standard	1 / 99	16.20	8.60	H	24.80	0.302	-5.20
1720.00	20	16-QAM	Standard	1 / 99	16.41	8.47	H	24.88	0.307	-5.12
1732.50	20	16-QAM	Standard	1 / 0	15.89	8.54	H	24.43	0.277	-5.57
1745.00	20	16-QAM	Standard	1 / 99	15.32	8.60	H	23.92	0.246	-6.08

Table 6-4. Equivalent Isotropic Radiated Power Output Data (Band 4)

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Equivalent Isotropic Radiated Power Output Data (cont'd)
§24.232(c); §27.50(d)(4)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery	RB Size/Offset	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Margin [dB]
1852.50	5	QPSK	Standard	1 / 24	13.27	8.56	H	21.83	0.152	-11.18
1880.00	5	QPSK	Standard	1 / 24	12.45	8.55	H	21.00	0.126	-12.01
1907.50	5	QPSK	Standard	1 / 24	12.09	8.54	H	20.63	0.116	-12.38
1852.50	5	16-QAM	Standard	1 / 24	12.14	8.56	H	20.70	0.117	-12.31
1880.00	5	16-QAM	Standard	1 / 24	10.31	8.55	H	18.86	0.077	-14.15
1907.50	5	16-QAM	Standard	1 / 24	10.83	8.54	H	19.37	0.086	-13.64
1855.00	10	QPSK	Standard	1 / 49	11.72	8.56	H	20.28	0.107	-12.73
1880.00	10	QPSK	Standard	1 / 49	11.50	8.55	H	20.05	0.101	-12.96
1905.00	10	QPSK	Standard	1 / 0	11.06	8.54	H	19.60	0.091	-13.41
1855.00	10	16-QAM	Standard	1 / 49	10.50	8.56	H	19.06	0.080	-13.95
1880.00	10	16-QAM	Standard	1 / 49	10.29	8.55	H	18.84	0.076	-14.17
1905.00	10	16-QAM	Standard	1 / 0	10.00	8.54	H	18.54	0.071	-14.47
1857.50	15	QPSK	Standard	1 / 0	13.66	8.56	H	22.22	0.167	-10.79
1880.00	15	QPSK	Standard	1 / 0	12.51	8.55	H	21.06	0.128	-11.95
1902.50	15	QPSK	Standard	1 / 0	10.56	8.54	H	19.10	0.081	-13.91
1857.50	15	16-QAM	Standard	1 / 0	12.61	8.56	H	21.17	0.131	-11.84
1880.00	15	16-QAM	Standard	1 / 0	11.51	8.55	H	20.06	0.101	-12.95
1902.50	15	16-QAM	Standard	1 / 0	9.36	8.54	H	17.90	0.062	-15.11
1860.00	20	QPSK	Standard	1 / 99	12.21	8.56	H	20.77	0.119	-12.24
1880.00	20	QPSK	Standard	1 / 0	12.60	8.55	H	21.15	0.130	-11.86
1900.00	20	QPSK	Standard	1 / 99	10.76	8.54	H	19.30	0.085	-13.71
1860.00	20	16-QAM	Standard	1 / 99	10.85	8.56	H	19.41	0.087	-13.60
1880.00	20	16-QAM	Standard	1 / 0	11.39	8.55	H	19.94	0.099	-13.07
1900.00	20	16-QAM	Standard	1 / 99	9.69	8.54	H	18.23	0.066	-14.78

Table 6-5. Equivalent Isotropic Radiated Power Output Data (Band 2)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, and 20MHz channel bandwidth in Band 4 and 15MHz channel bandwidth in Band 2. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.4 Band 17 Radiated Measurements

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 709.00 MHz
 CHANNEL: 23780
 MEASURED OUTPUT POWER: 21.42 dBm = 0.139 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.42 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1418.00	-57.08	3.63	-53.45	H	74.87
2127.00	-61.73	3.90	-57.84	H	79.26
2836.00	-49.58	5.01	-44.57	H	65.99
3545.00	-53.03	6.25	-46.78	H	68.20
4254.00	-65.19	7.23	-57.96	H	79.38
4963.00	-90.41	7.86	-82.54	H	103.96

Table 6-6. Radiated Spurious Data (Ch. 23755)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 1 RB and 49 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 17 Radiated Measurements (cont'd)
§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 710.00 MHz
 CHANNEL: 23790
 MEASURED OUTPUT POWER: 21.19 dBm = 0.132 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 34.19 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1420.00	-57.89	3.68	-54.21	H	75.40
2130.00	-65.40	3.92	-61.48	H	82.67
2840.00	-54.40	5.02	-49.37	H	70.56
3550.00	-61.96	6.25	-55.71	H	76.90
4260.00	-90.70	7.25	-83.45	H	104.64
4970.00	-90.41	7.90	-82.50	H	103.69

Table 6-7. Radiated Spurious Data (Ch. 23790)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 25 RB and 12 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 17 Radiated Measurements (cont'd)
§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 711.00 MHz
 CHANNEL: 23800
 MEASURED OUTPUT POWER: 21.10 dBm = 0.129 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.10 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1422.00	-59.48	3.73	-55.75	H	76.85
2133.00	-65.09	3.94	-61.15	H	82.25
2844.00	-54.08	5.04	-49.05	H	70.15
3555.00	-62.23	6.25	-55.98	H	77.08
4266.00	-90.70	7.25	-83.45	H	104.55
4977.00	-90.41	7.94	-82.47	H	103.57

Table 6-8. Radiated Spurious Data (Ch. 23825)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 25 RB and 12 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.5 Band 5 Radiated Measurements

§2.1053, §22.917(a)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 20450
 MEASURED OUTPUT POWER: 18.10 dBm = 0.065 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 31.096 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1658.00	-43.08	2.50	-40.58	H	58.68
2487.00	-58.84	2.82	-56.02	H	74.11
3316.00	-61.48	5.52	-55.96	H	74.06
4145.00	-65.36	7.08	-58.28	H	76.37
4974.00	-90.41	7.91	-82.50	H	100.59
5803.00	-88.78	8.51	-80.27	H	98.37

Table 6-9. Radiated Spurious Data (Ch. 20425)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 5 Radiated Measurements (cont'd)
§2.1053, §22.917(a)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 15.76 dBm = 0.038 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.756 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.00	-46.45	2.34	-44.11	H	59.87
2509.50	-59.35	2.84	-56.51	H	72.27
3346.00	-61.84	5.64	-56.19	H	71.95
4182.50	-65.59	7.14	-58.44	H	74.20
5019.00	-90.39	7.97	-82.42	H	98.18
5855.50	-88.48	8.46	-80.01	H	95.77

Table 6-10. Radiated Spurious Data (Ch. 20525)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 5 Radiated Measurements (cont'd)
§2.1053, §22.917(a)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 20600
 MEASURED OUTPUT POWER: 15.35 dBm = 0.034 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 28.346 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1688.00	-46.10	2.18	-43.92	H	59.27
2532.00	-59.04	3.04	-56.00	H	71.34
3376.00	-62.22	5.76	-56.45	H	71.80
4220.00	-65.54	7.20	-58.34	H	73.68
5064.00	-90.34	8.00	-82.33	H	97.68
5908.00	-88.17	8.42	-79.75	H	95.10

Table 6-11. Radiated Spurious Data (Ch. 20625)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.6 Band 4 Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 20050
 MEASURED OUTPUT POWER: 26.04 dBm = 0.402 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 39.037 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3440.00	-56.93	8.09	-48.84	H	74.88
5160.00	-67.00	10.21	-56.79	H	82.83
6880.00	-67.90	11.31	-56.59	H	82.63
8600.00	-67.93	13.02	-54.91	H	80.95
10320.00	-62.86	13.01	-49.85	H	75.89
12040.00	-86.91	13.21	-73.70	H	99.74

Table 6-12. Radiated Spurious Data (Ch. 19975)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 20MHz channel bandwidth, 1 RB and 99 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSGHI317			FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 4 Radiated Measurements (cont'd)
§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 25.74 dBm = 0.375 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.741 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-57.80	8.26	-49.53	H	75.27
5197.50	-66.98	10.26	-56.72	H	82.47
6930.00	-65.77	11.42	-54.35	H	80.09
8662.50	-66.19	13.07	-53.12	H	78.86
10395.00	-63.32	13.12	-50.21	H	75.95
12127.50	-86.41	13.25	-73.16	H	98.90

Table 6-13. Radiated Spurious Data (Ch. 20175)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 20MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSGHI317			FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 4 Radiated Measurements (cont'd)
§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 20300
 MEASURED OUTPUT POWER: 24.80 dBm = 0.302 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 37.798 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3490.00	-49.64	8.40	-41.24	H	66.04
5235.00	-63.29	10.32	-52.97	H	77.77
6980.00	-63.83	11.51	-52.32	H	77.11
8725.00	-66.26	13.11	-53.15	H	77.95
10470.00	-62.46	13.20	-49.26	H	74.06
12215.00	-85.91	13.31	-72.60	H	97.40

Table 6-14. Radiated Spurious Data (Ch. 20375)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 10MHz channel bandwidth, 1 RB and 99 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.7 Band 2 Radiated Measurements

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1857.50 MHz
 CHANNEL: 18675
 MEASURED OUTPUT POWER: 22.22 dBm = 0.167 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 35.22 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3715.00	-37.38	8.40	-28.98	H	51.20
5572.50	-58.41	10.63	-47.78	H	70.00
7430.00	-51.17	11.84	-39.34	H	61.55
9287.50	-55.87	13.29	-42.58	H	64.79
11145.00	-56.95	13.50	-43.45	H	65.66
13002.50	-84.83	13.68	-71.15	H	93.37

Table 6-15. Radiated Spurious Data (Ch. 18625)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 15MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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Band 2 Radiated Measurements (cont'd)
§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 21.06 dBm = 0.128 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.06 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-46.72	8.42	-38.30	H	59.36
5640.00	-62.90	10.66	-52.24	H	73.30
7520.00	-49.06	11.92	-37.14	H	58.19
9400.00	-55.52	13.24	-42.28	H	63.34
11280.00	-61.14	13.49	-47.65	H	68.71
13160.00	-84.53	13.83	-70.70	H	91.75

Table 6-16. Radiated Spurious Data (Ch. 18900)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 15MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

FCC ID: A3LSGHI317			FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 2 Radiated Measurements (cont'd)
§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation



OPERATING FREQUENCY: 1902.50 MHz
 CHANNEL: 19125
 MEASURED OUTPUT POWER: 19.10 dBm = 0.081 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 15 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.10 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3805.00	-44.61	8.55	-36.06	H	55.16
5707.50	-63.15	10.69	-52.46	H	71.56
7610.00	-53.87	12.05	-41.82	H	60.92
9512.50	-56.77	13.20	-43.57	H	62.66
11415.00	-64.21	13.43	-50.78	H	69.88
13317.50	-84.25	14.00	-70.25	H	89.35

Table 6-17. Radiated Spurious Data (Ch. 19175)

NOTES:

This device was tested under all modulations, RB sizes and offsets, and channel bandwidth configurations and the worst case emissions are reported with QPSK modulation, 15MHz channel bandwidth, 1 RB and 0 offset. This unit was tested with its standard battery. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

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6.8 Band 17 Frequency Stability Measurements

§2.1055, §27.54, RSS-133 (6.3)



OPERATING FREQUENCY: 710,000,000 Hz
 CHANNEL: 23090
 REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	709,999,992	-8	-0.000011
100 %		- 30	710,000,021	21	0.000029
100 %		- 20	709,999,991	-9	-0.000013
100 %		- 10	710,000,002	2	0.000002
100 %		0	710,000,011	11	0.000015
100 %		+ 10	709,999,989	-11	-0.000016
100 %		+ 20	709,999,998	-2	-0.000003
100 %		+ 30	710,000,011	11	0.000015
100 %		+ 40	710,000,007	7	0.000010
100 %		+ 50	709,999,998	-2	-0.000002
115 %	4.37	+ 20	710,000,010	10	0.000014
85 %	3.23	+ 20	710,000,003	3	0.000005

Table 6-18. Frequency Stability Data (Band 17)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 17 Frequency Stability Measurements (Cont'd)
§2.1055, §27.54, RSS-133 (6.3)

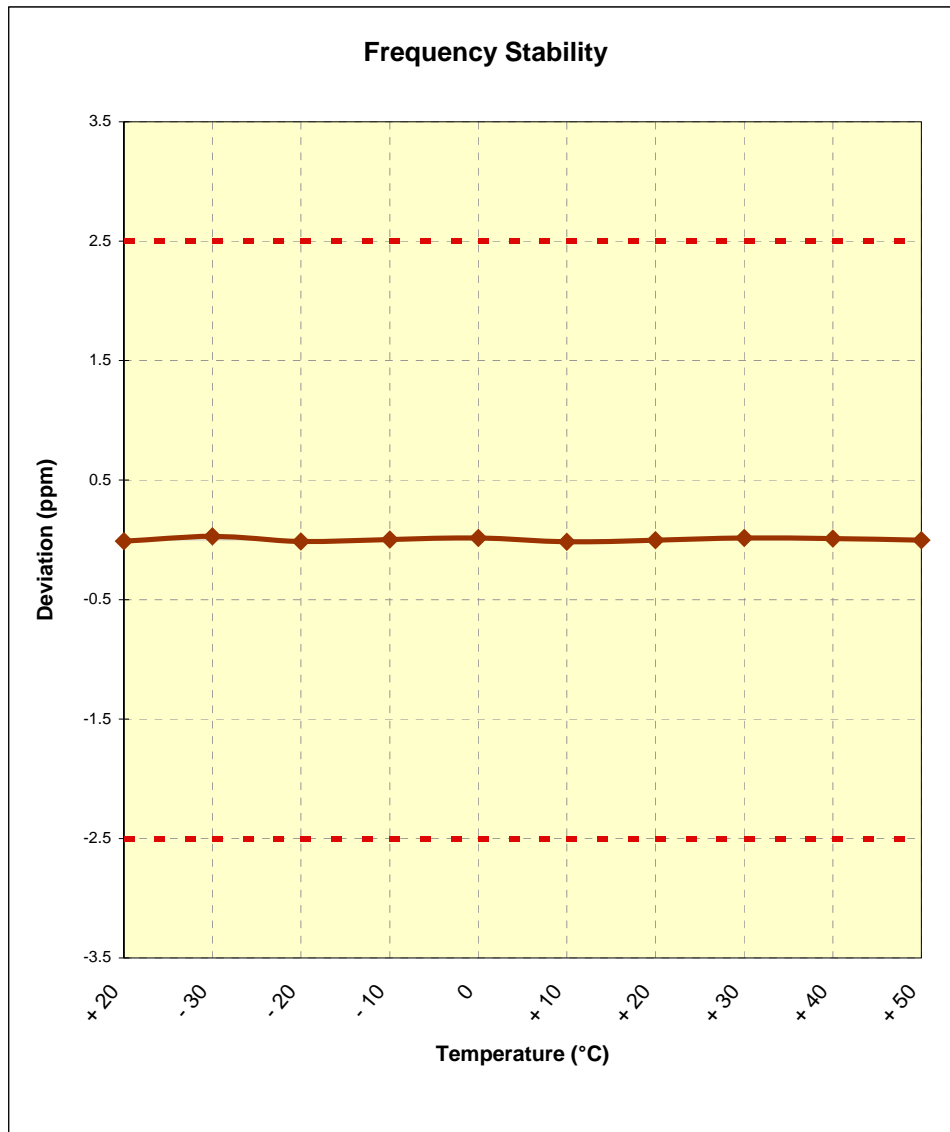




Figure 6-1. Frequency Stability Graph (Band 17)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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6.9 Band 5 Frequency Stability Measurements



\$2.1055, \$22.355

OPERATING FREQUENCY: 836,500,000 Hz
 CHANNEL: 20525
 REFERENCE VOLTAGE: 3.8 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	836,499,990	-10	-0.000012
100 %		- 30	836,499,989	-11	-0.000013
100 %		- 20	836,500,001	1	0.000001
100 %		- 10	836,499,992	-8	-0.000009
100 %		0	836,500,003	3	0.000003
100 %		+ 10	836,499,981	-19	-0.000023
100 %		+ 20	836,499,992	-8	-0.000009
100 %		+ 30	836,500,003	3	0.000004
100 %		+ 40	836,499,998	-2	-0.000002
100 %		+ 50	836,499,996	-4	-0.000005
115 %	4.37	+ 20	836,500,003	3	0.000003
85 %	3.23	+ 20	836,500,000	0	0.000000

Table 6-19. Frequency Stability Data (Band 5)

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 5 Frequency Stability Measurements (Cont'd)
§2.1055, §22.355

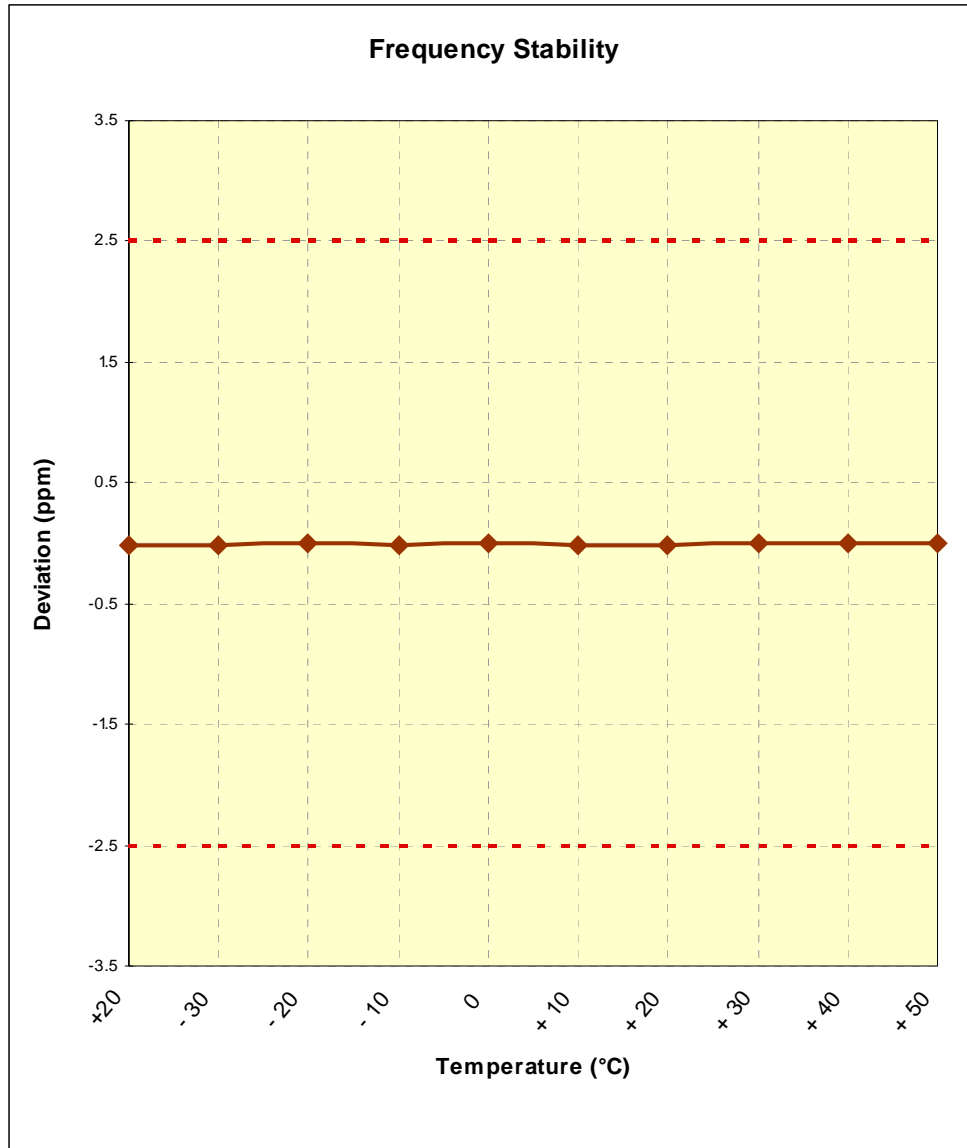




Figure 6-2. Frequency Stability Graph (Band 5)

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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6.10 Band 4 Frequency Stability Measurements

§2.1055, §27.54, RSS-133 (6.3)



OPERATING FREQUENCY: 1,732,500,000 Hz
 CHANNEL: 20175
 REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,732,499,995	-6	-0.0000003
100 %		- 30	1,732,500,006	6	0.0000003
100 %		- 20	1,732,499,984	-16	-0.0000009
100 %		- 10	1,732,499,979	-21	-0.0000012
100 %		0	1,732,500,005	5	0.0000003
100 %		+ 10	1,732,500,008	8	0.0000005
100 %		+ 20	1,732,499,982	-18	-0.0000010
100 %		+ 30	1,732,499,995	-5	-0.0000003
100 %		+ 40	1,732,499,989	-11	-0.0000006
100 %		+ 50	1,732,500,022	22	0.0000012
115 %	4.37	+ 20	1,732,500,021	21	0.0000012
85 %	3.23	+ 20	1,732,500,018	18	0.0000010

Table 6-20. Frequency Stability Data (Band 4)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 4 Frequency Stability Measurements (Cont'd)
§2.1055, §27.54; RSS-133 (6.3)

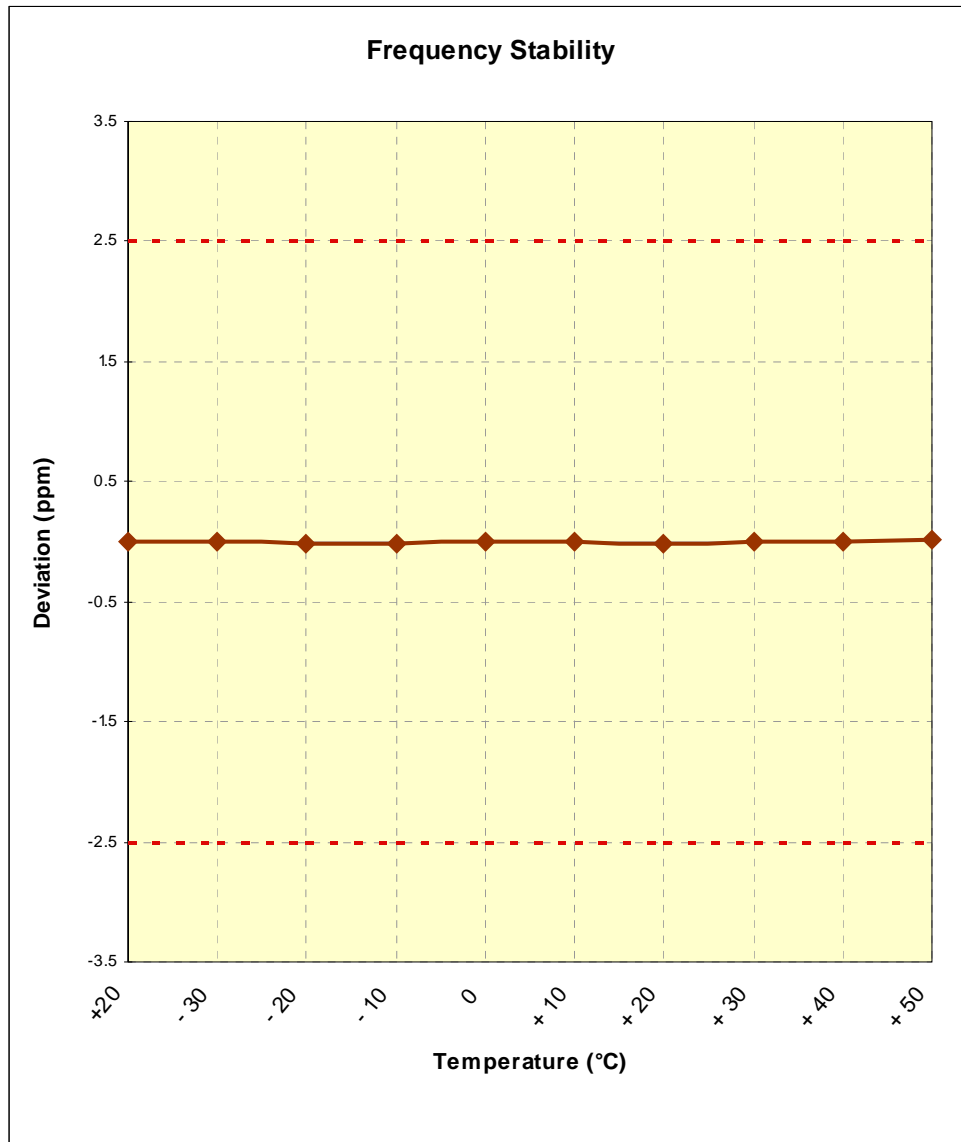




Figure 6-3. Frequency Stability Graph (Band 4)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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6.11 Band 2 Frequency Stability Measurements

§2.1055, §24.235



OPERATING FREQUENCY: 1,880,000,000 Hz
 CHANNEL: 18900
 REFERENCE VOLTAGE: 3.8 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,880,000,013	13	0.0000007
100 %		- 30	1,880,000,010	10	0.0000005
100 %		- 20	1,879,999,980	-20	-0.0000010
100 %		- 10	1,879,999,993	-7	-0.0000004
100 %		0	1,879,999,991	-9	-0.0000005
100 %		+ 10	1,879,999,994	-6	-0.0000003
100 %		+ 20	1,880,000,003	3	0.0000002
100 %		+ 30	1,879,999,988	-12	-0.0000006
100 %		+ 40	1,879,999,988	-12	-0.0000006
100 %		+ 50	1,879,999,996	-4	-0.0000002
115 %	4.37	+ 20	1,880,000,017	17	0.0000009
85 %	3.23	+ 20	1,879,999,998	-2	-0.0000001

Table 6-21. Frequency Stability Data (Band 2)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 2 Frequency Stability Measurements (Cont'd)
§2.1055, §24.235

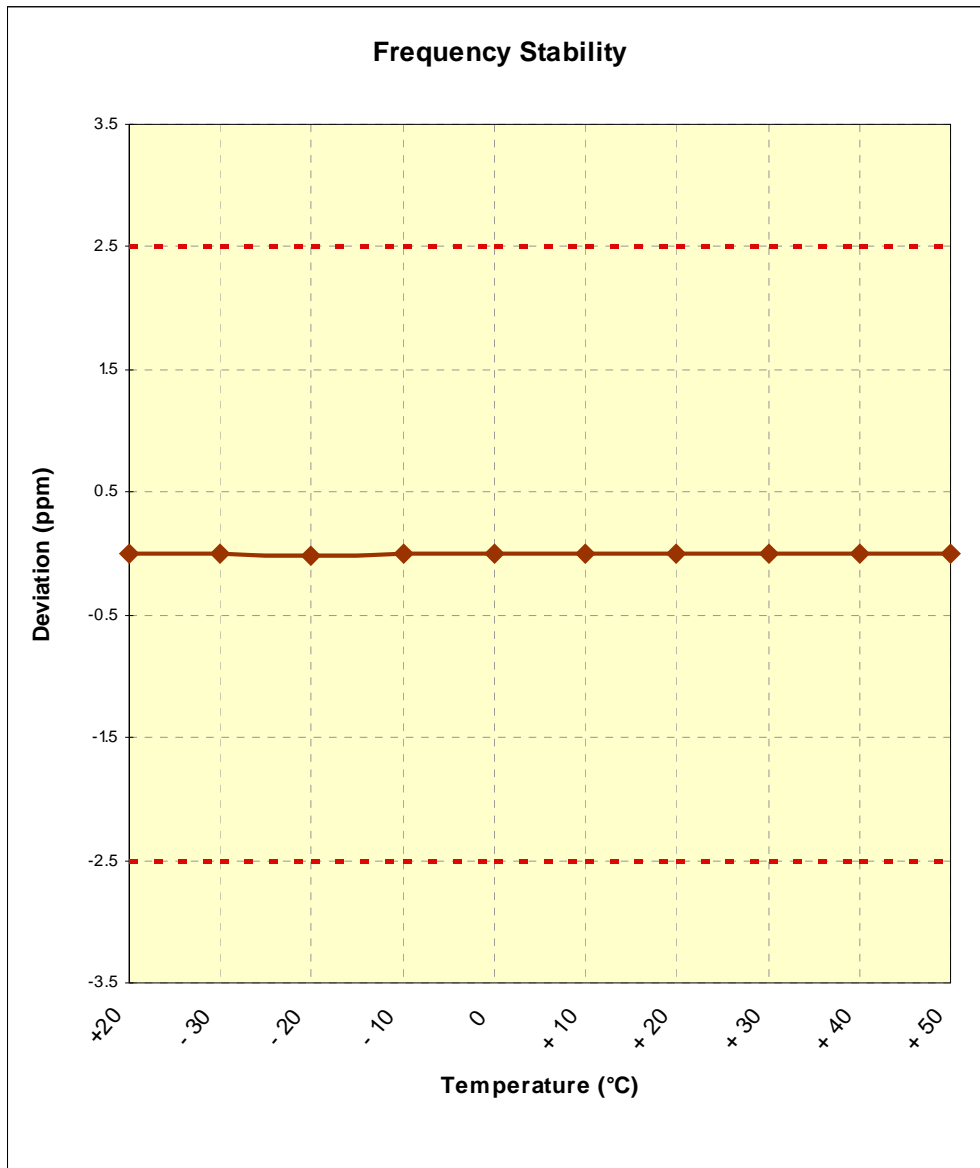




Figure 6-4. Frequency Stability Graph (Band 2)

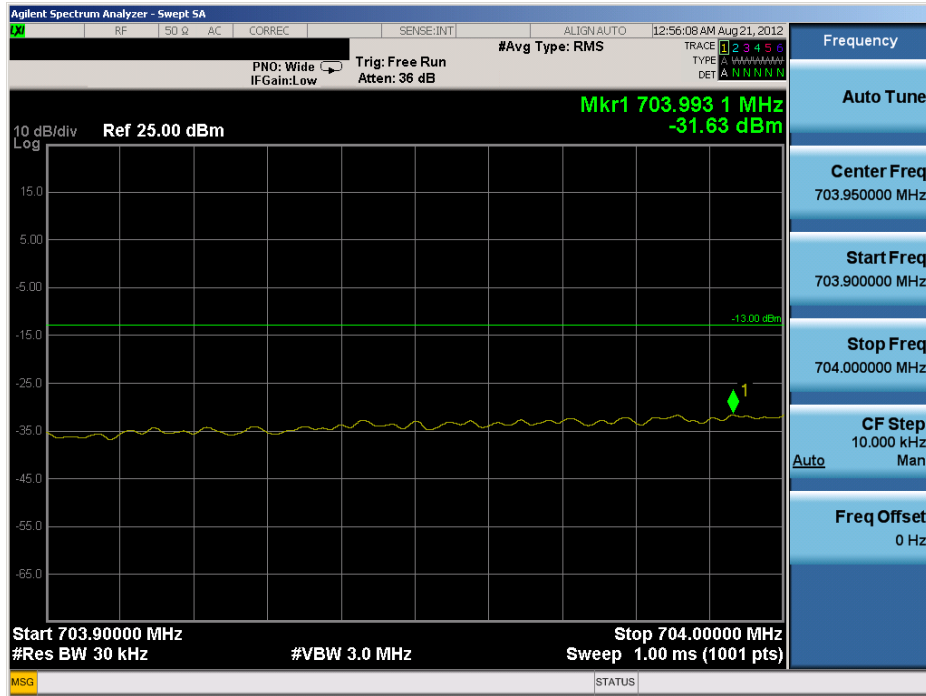
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

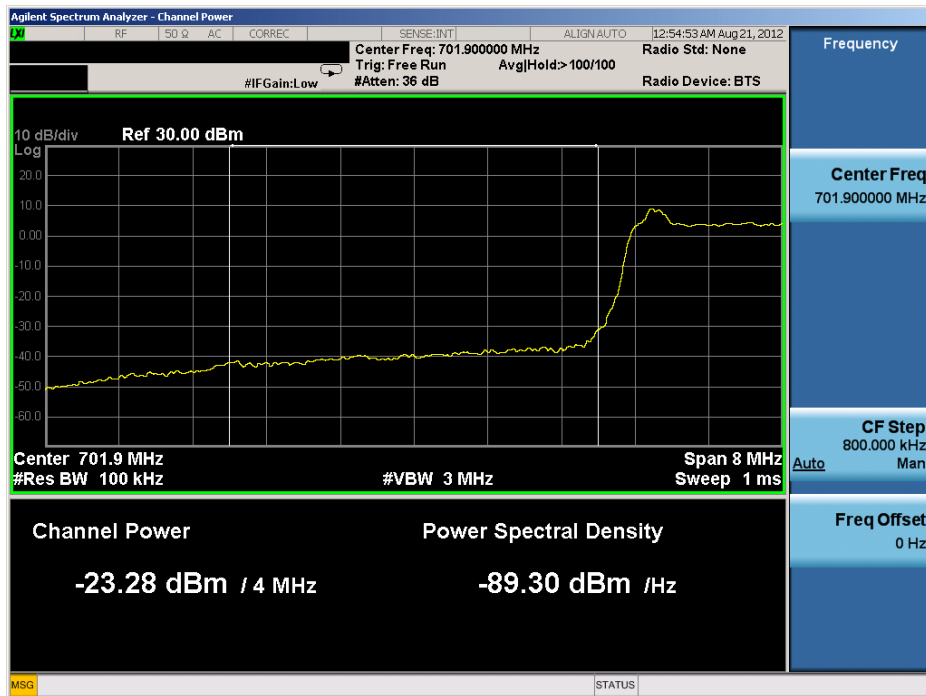
FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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7.0 PLOT(S) OF EMISSIONS – BAND 17 (5 MHz)

Note: For all out-of-band spurious emissions, the RB sizes and offsets that produced the worst case emissions are indicated in the plot captions.

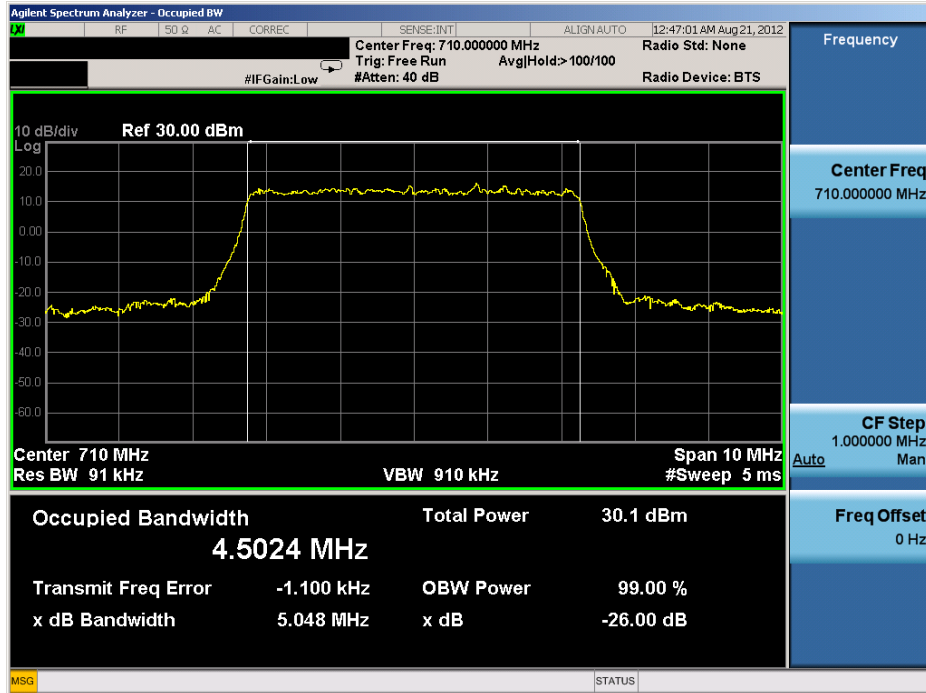


Plot 7-1. Lower Band Edge Plot (QPSK – RB Size 25)

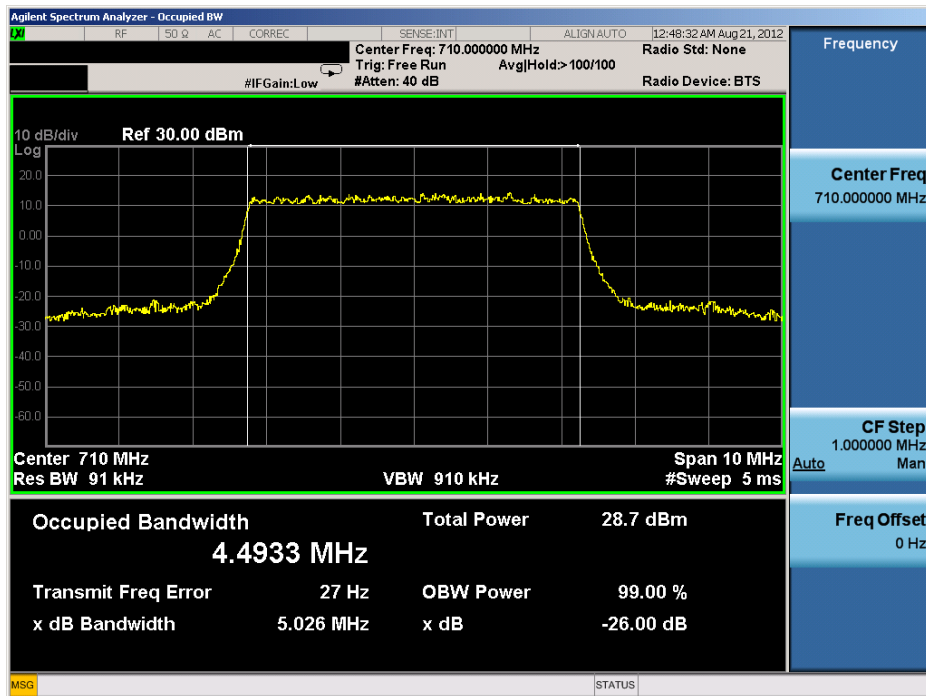


Plot 7-2. Lower Band Edge Plot Plot (QPSK – RB Size 25)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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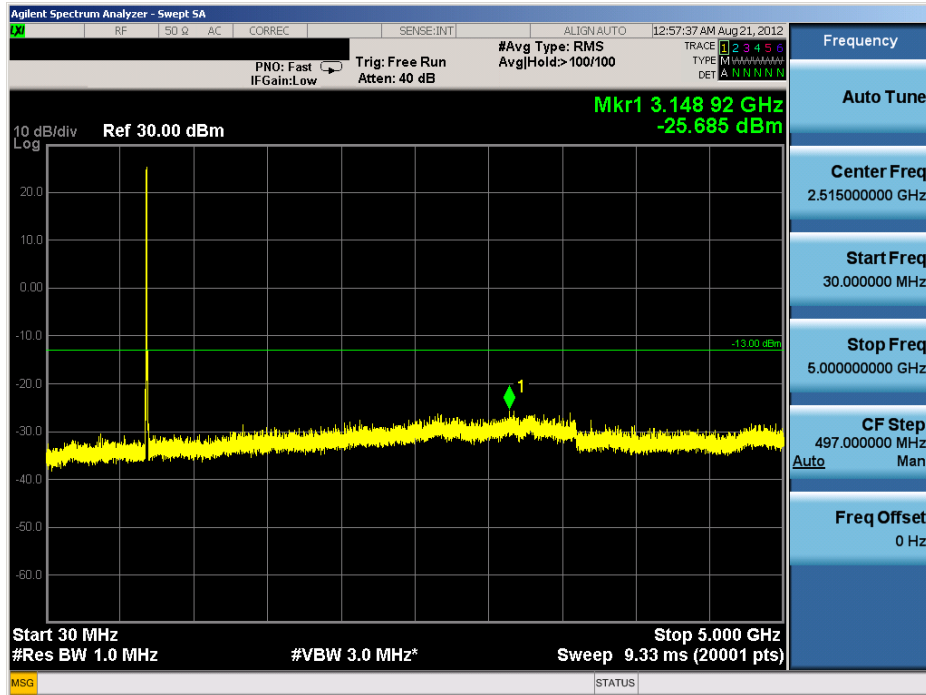


Plot 7-3. Occupied Bandwidth Plot (QPSK – RB Size 25)

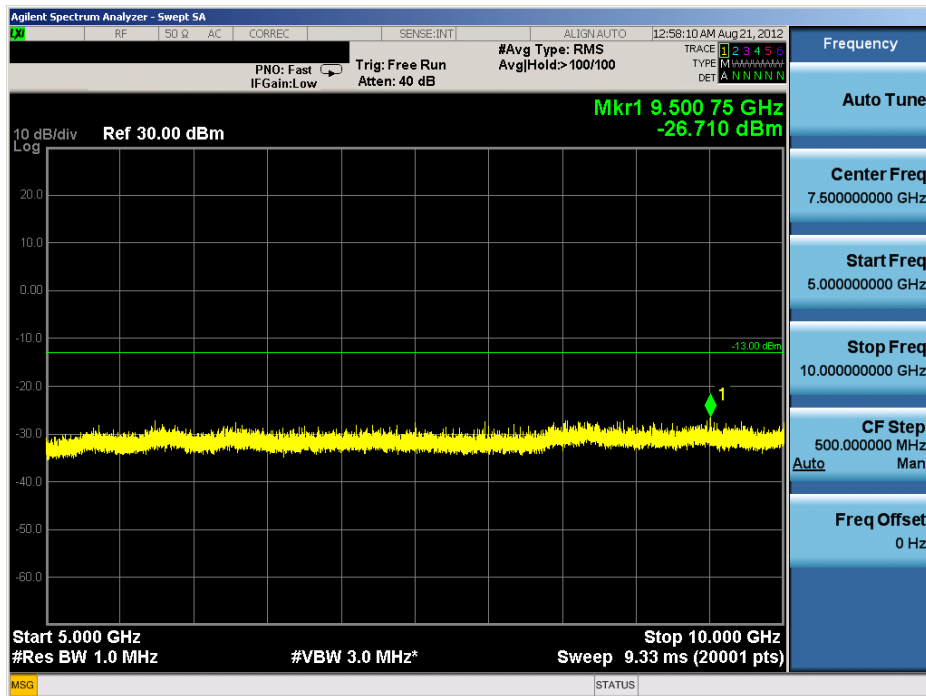


Plot 7-4. Occupied Bandwidth Plot (16-QAM – RB Size 25)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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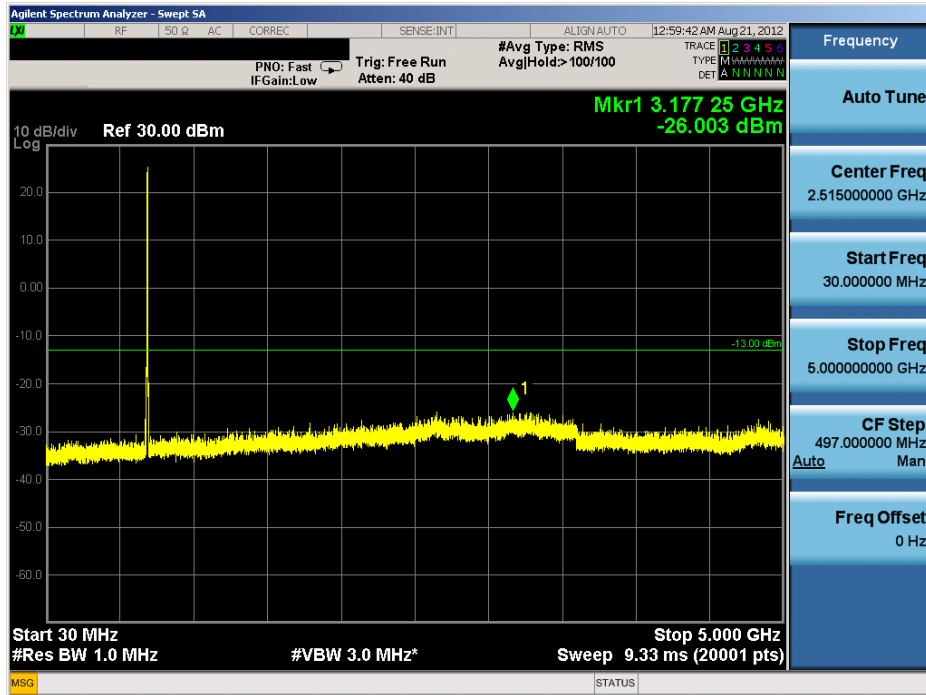


Plot 7-5. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

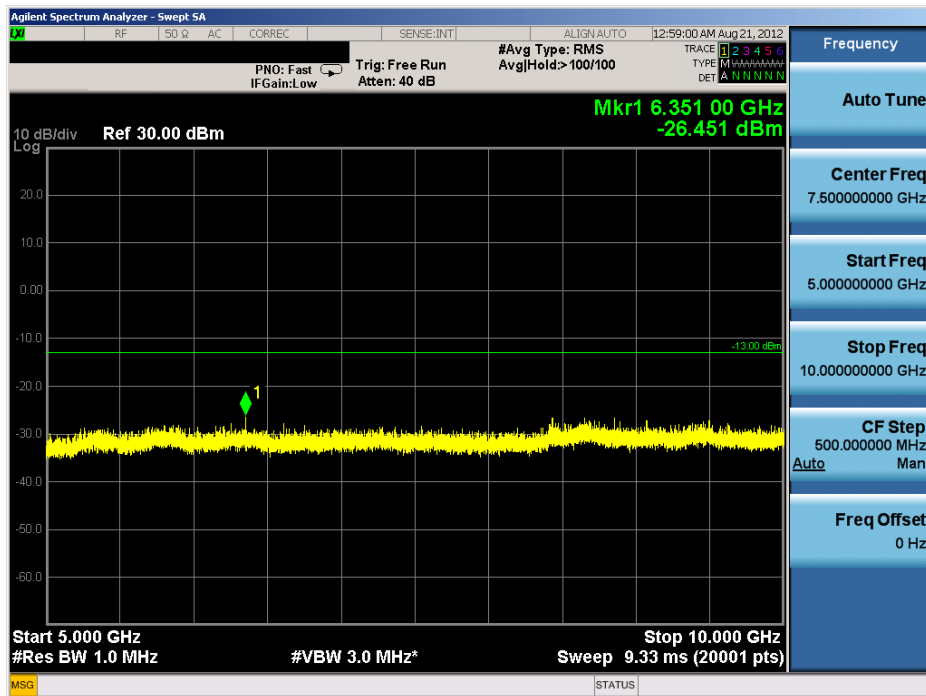


Plot 7-6. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)



FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 39 of 117

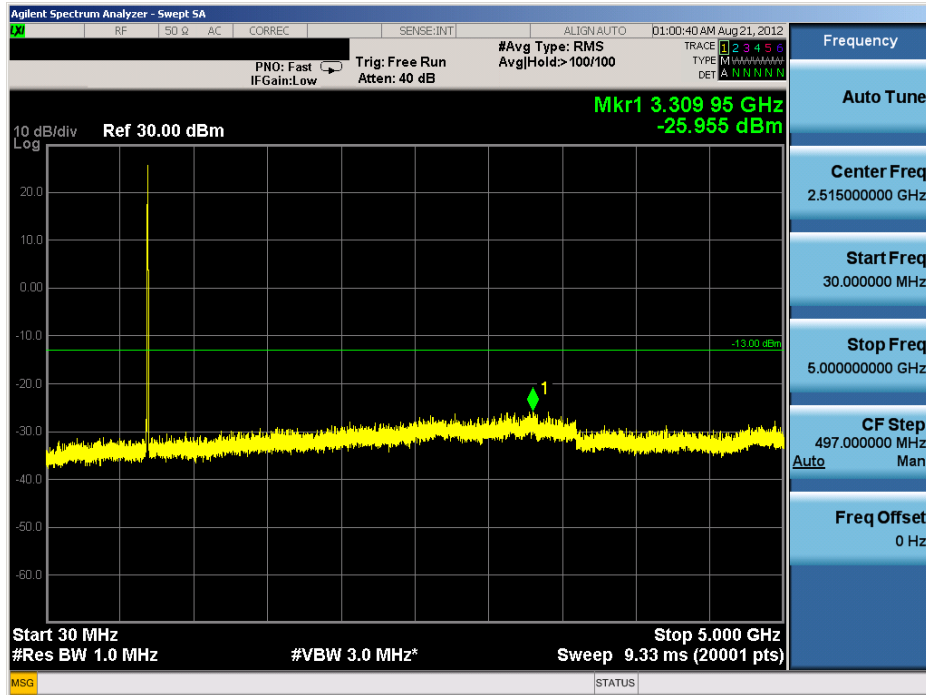


Plot 7-7. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

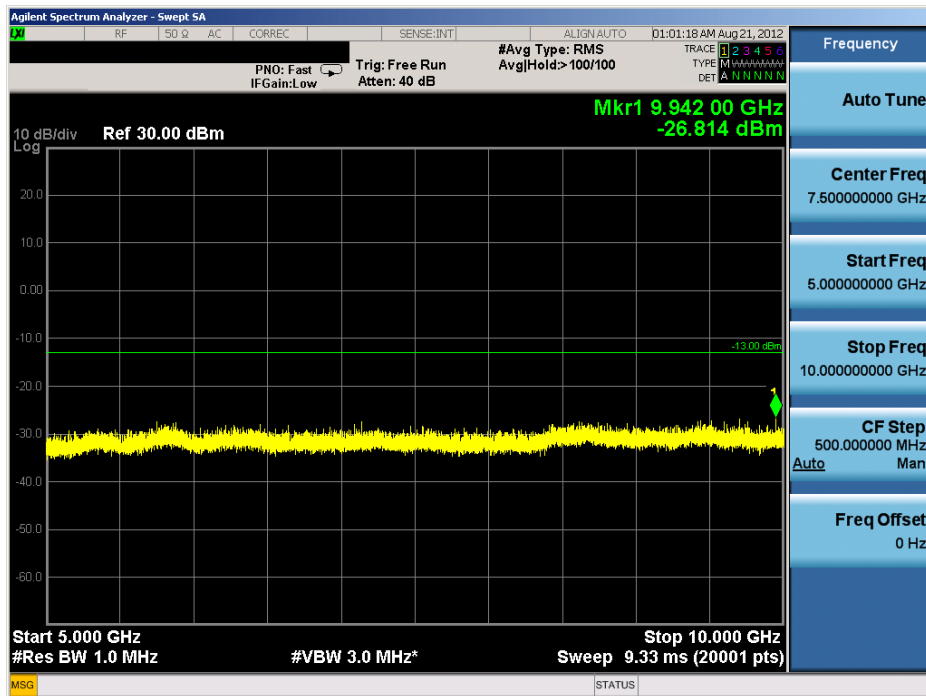


Plot 7-8. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 40 of 117

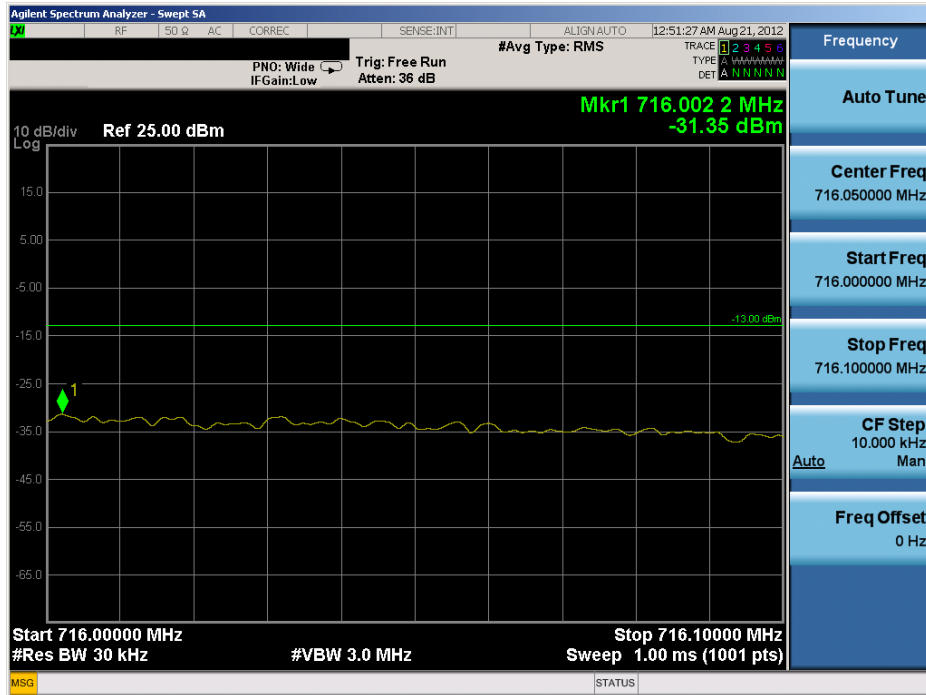


Plot 7-9. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

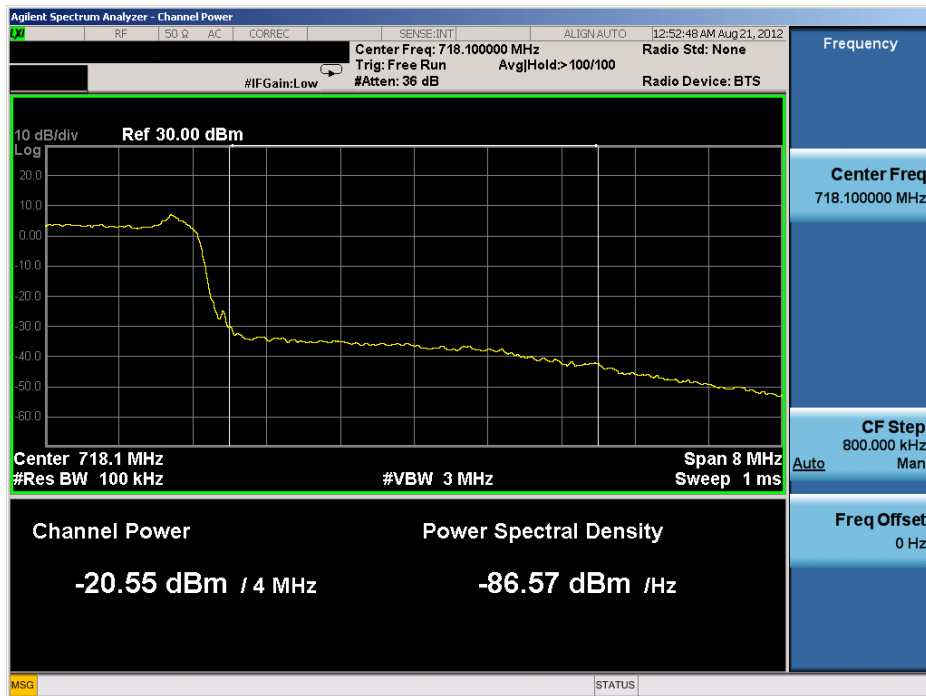


Plot 7-10. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 41 of 117

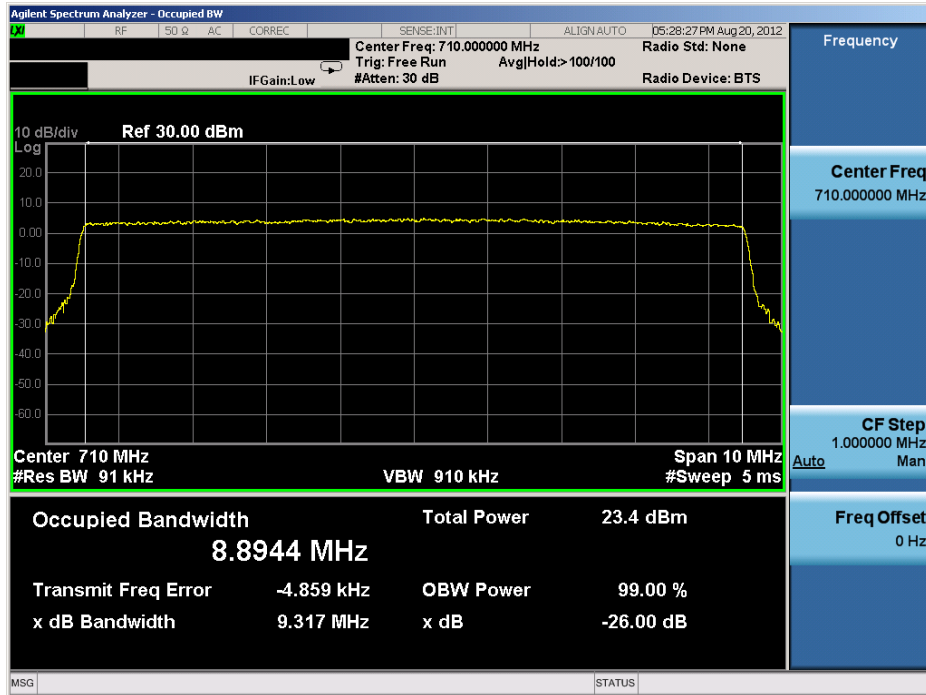


Plot 7-11. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

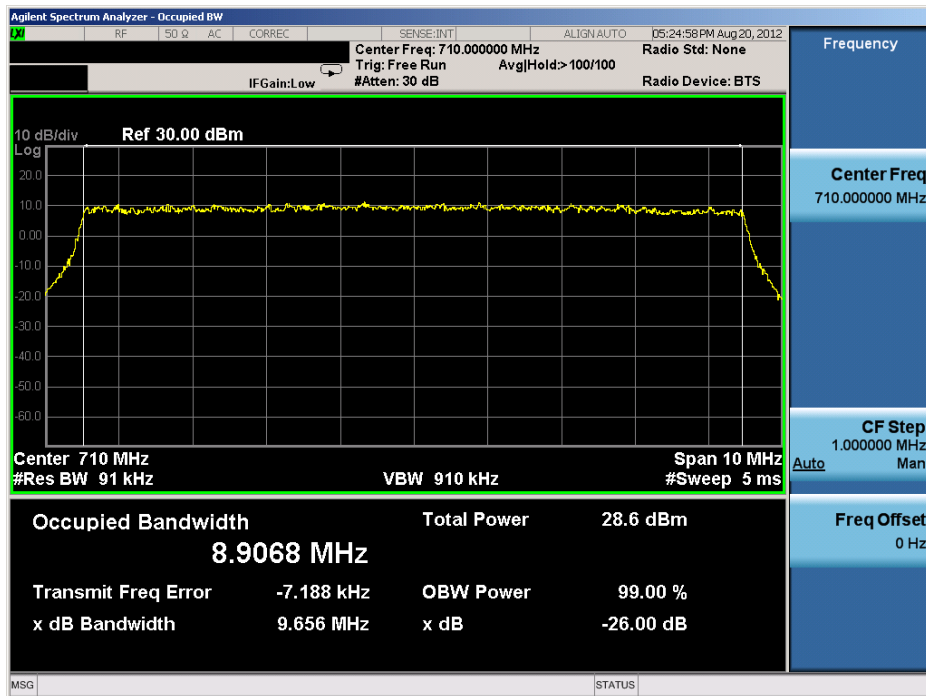


Plot 7-12. Upper Band Edge Plot (QPSK – RB Size 25)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 42 of 117

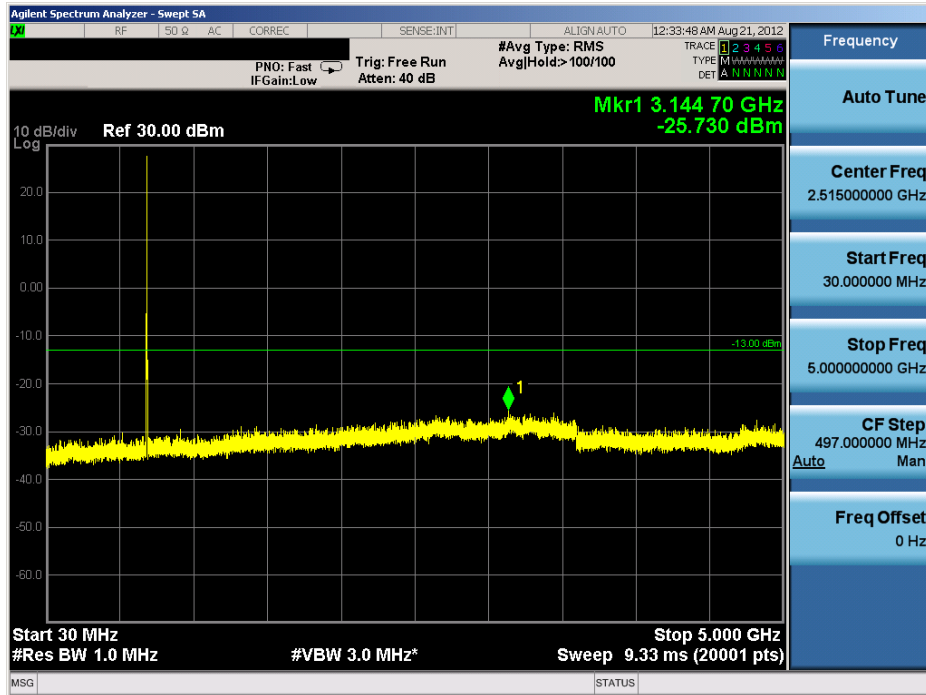


Plot 7-15. Occupied Bandwidth Plot (QPSK – RB Size 50)

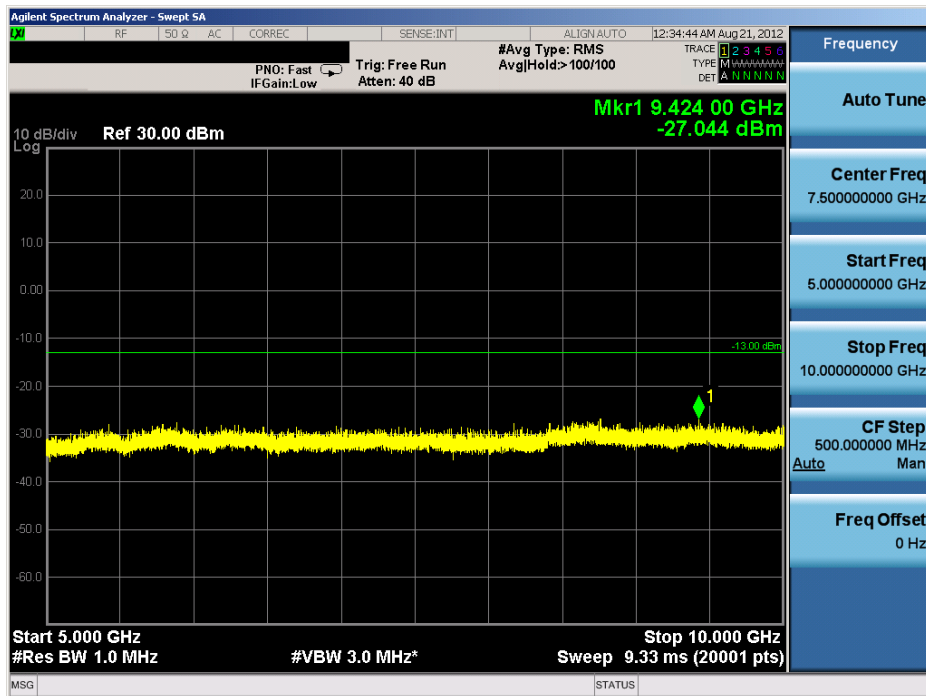


Plot 7-16. Occupied Bandwidth Plot (16-QAM – RB Size 50)



FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 44 of 117

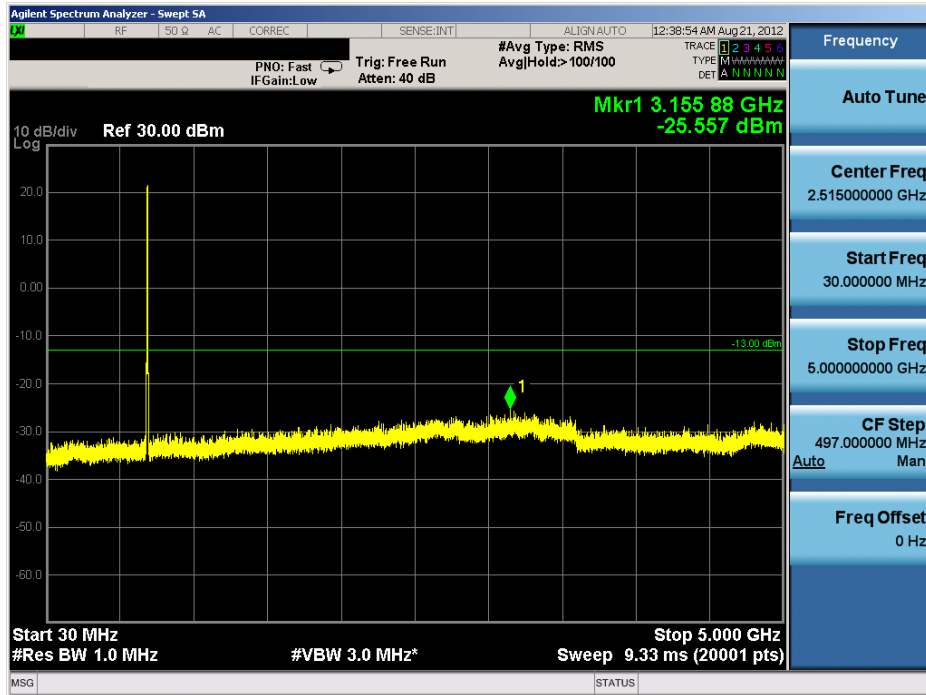


Plot 7-17. Conducted Spurious Plot (QPSK – RB Size 1, RB 0 – Low Channel)

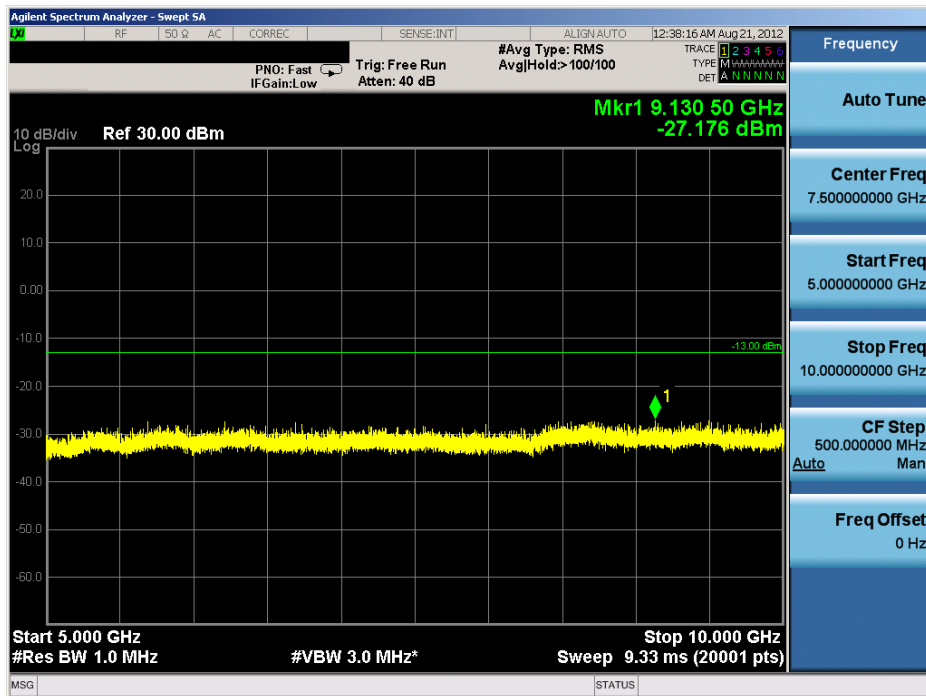


Plot 7-18. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 45 of 117

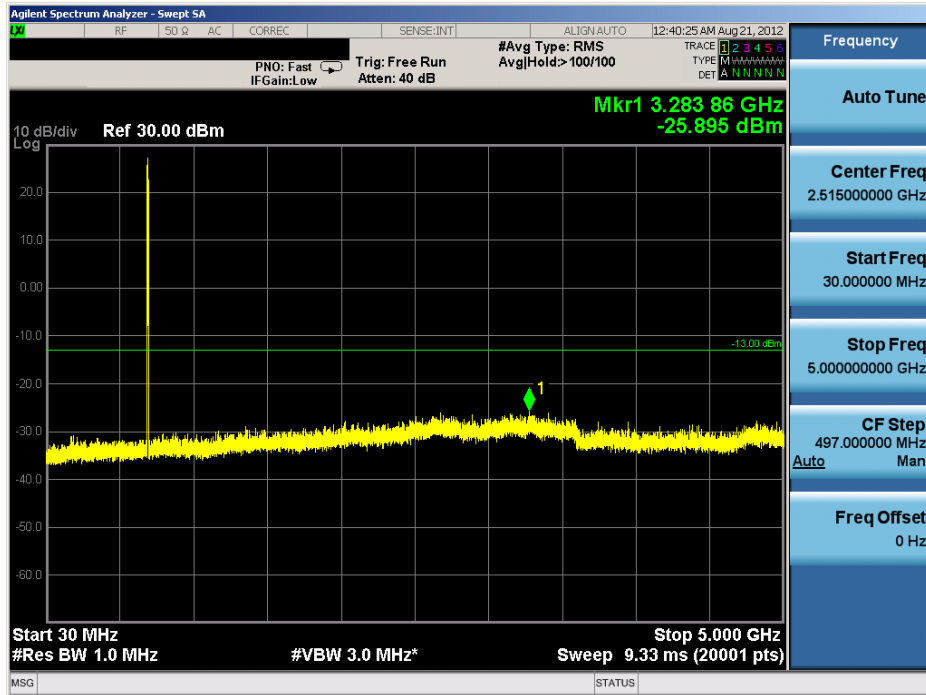


Plot 7-19. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

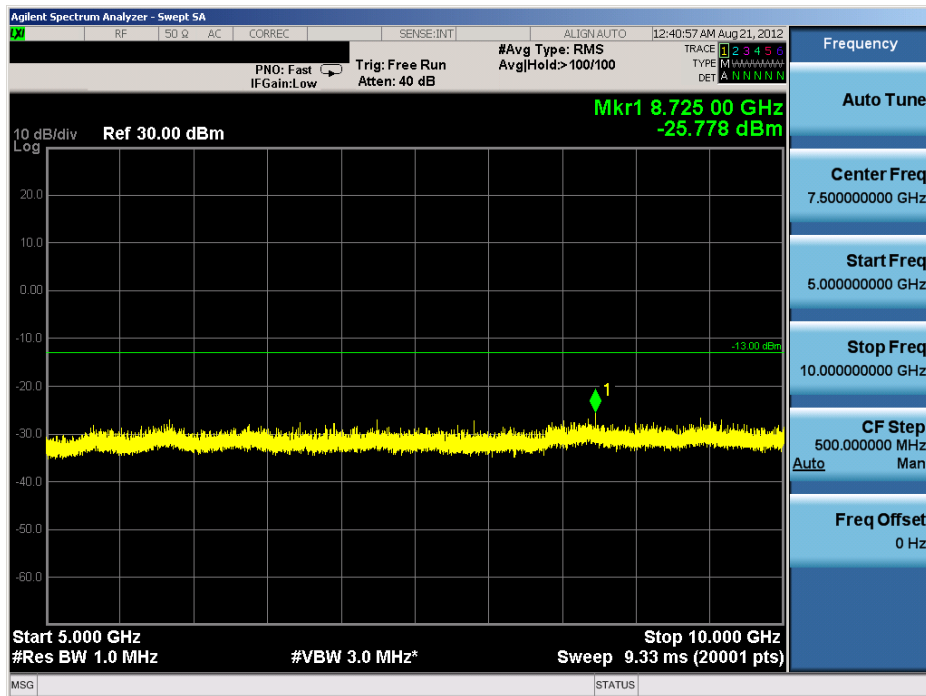


Plot 7-20. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 46 of 117

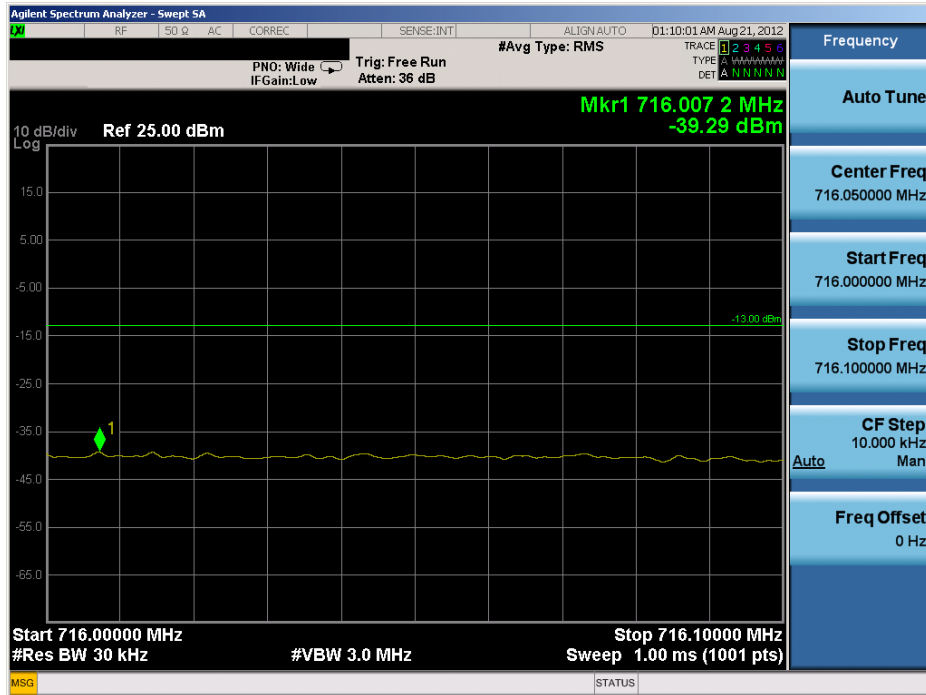


Plot 7-21. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

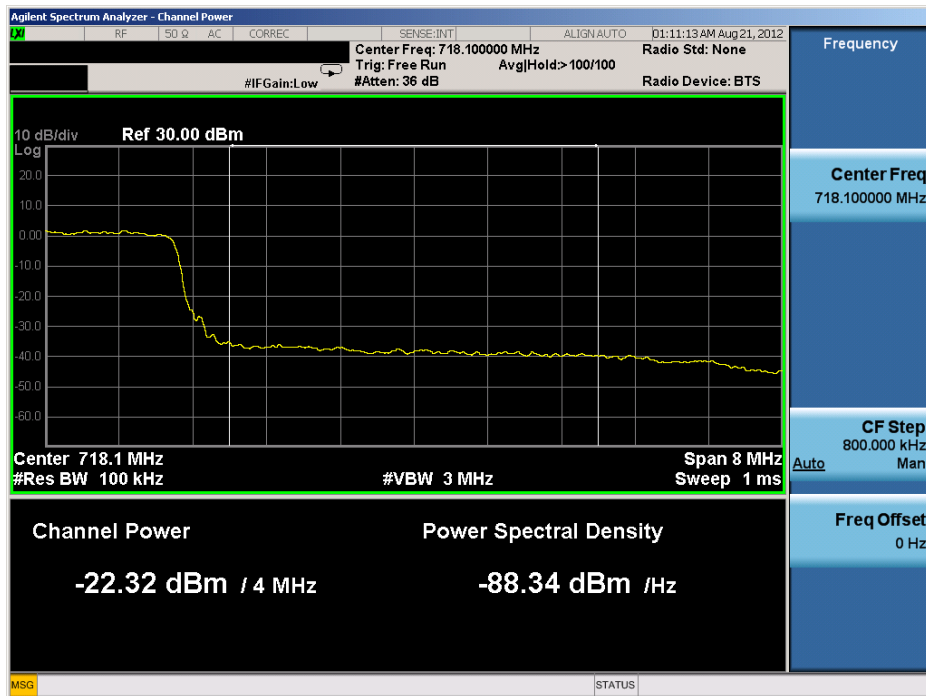


Plot 7-22. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 47 of 117



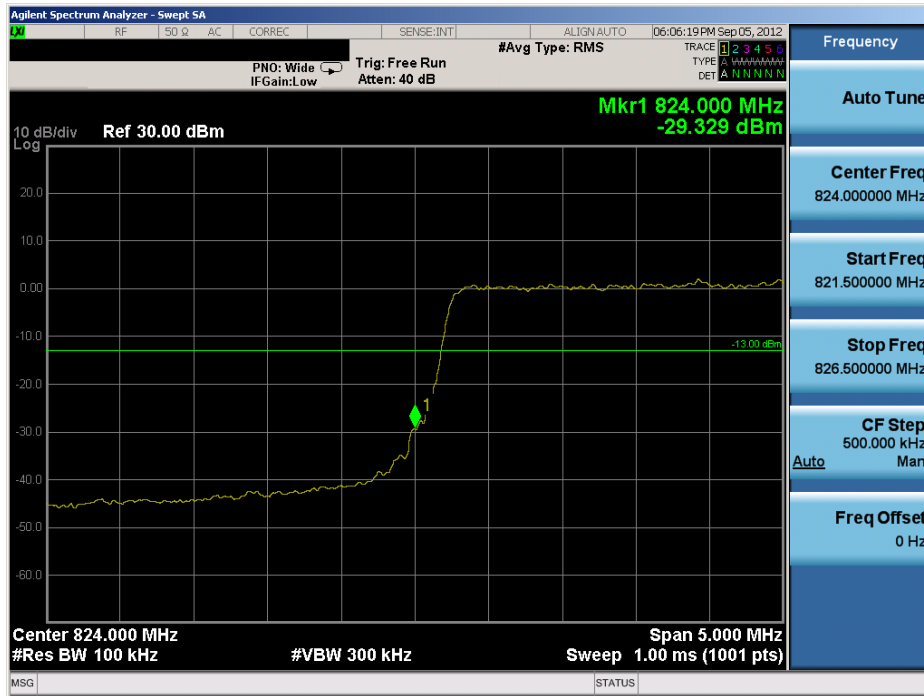
Plot 7-23. Upper Band Edge Plot (QPSK – RB Size 50)



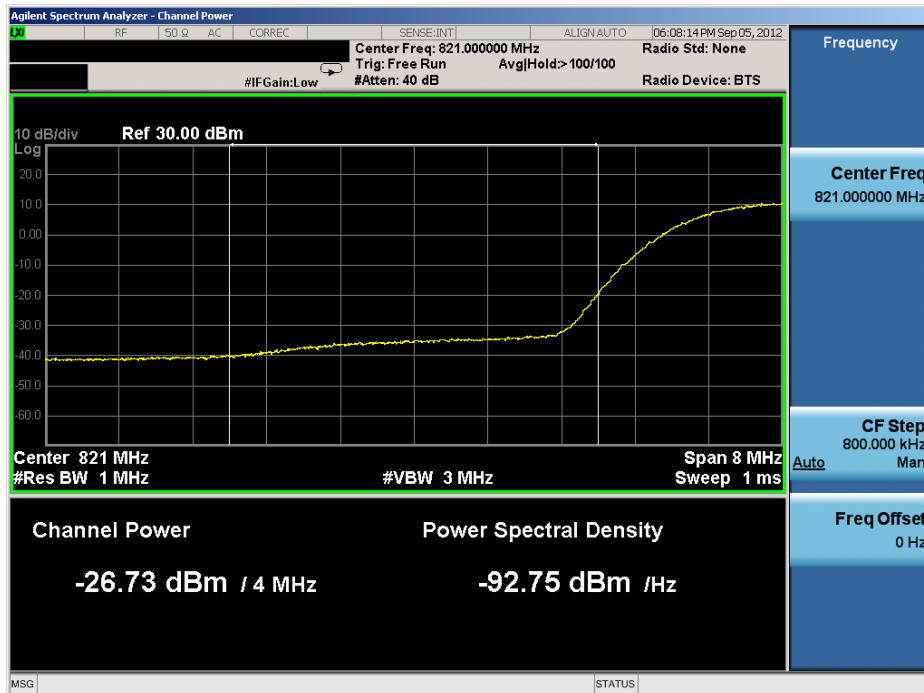
Plot 7-24. Upper Band Edge Plot (QPSK – RB Size 50)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 48 of 117

BAND 5 – 5 MHz BW

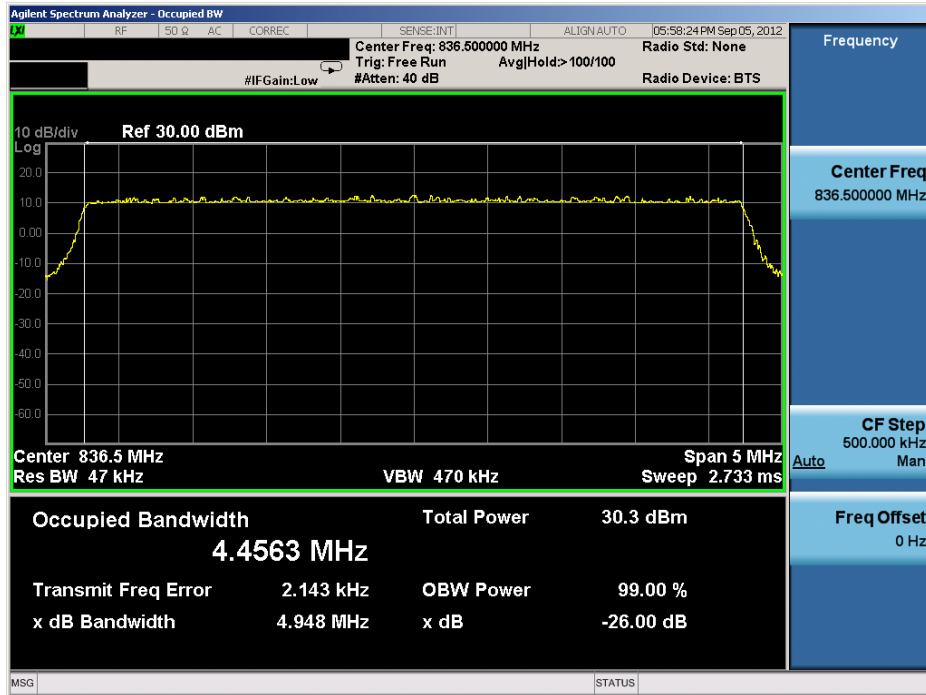


Plot 7-25. Lower Band Edge Plot (QPSK – RB Size 25)

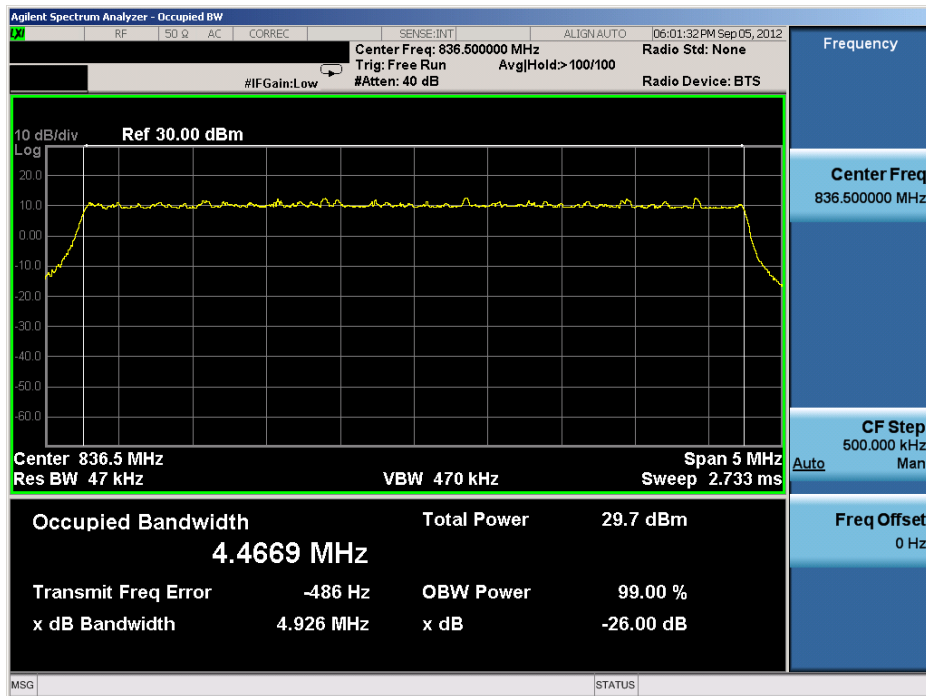


Plot 7-26. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 49 of 117

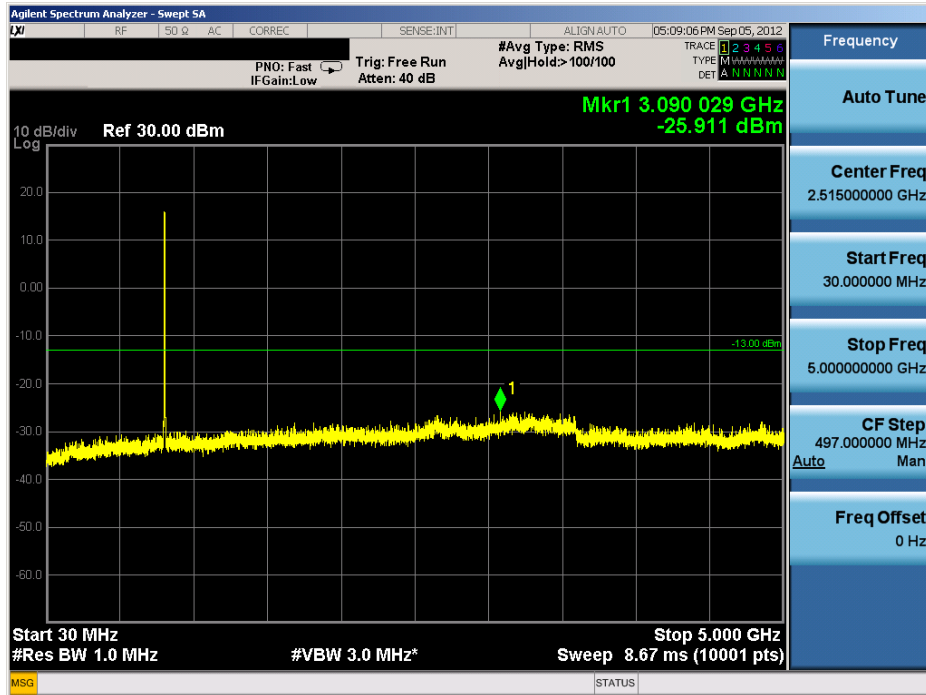


Plot 7-27. Occupied Bandwidth Plot (QPSK – RB Size 25)

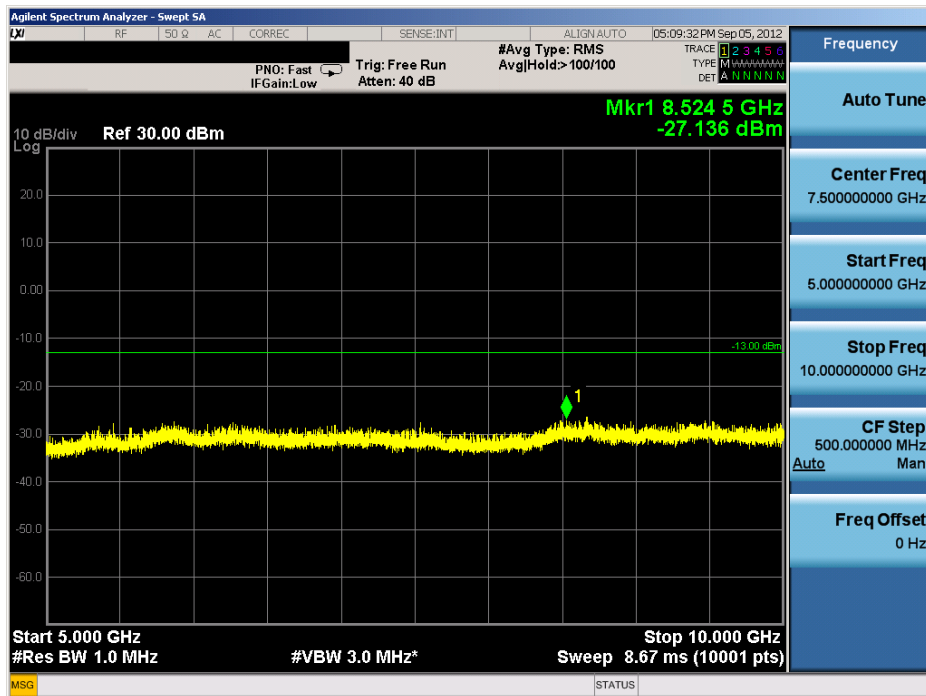


Plot 7-28. Occupied Bandwidth Plot (16-QAM – RB Size 25)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 50 of 117

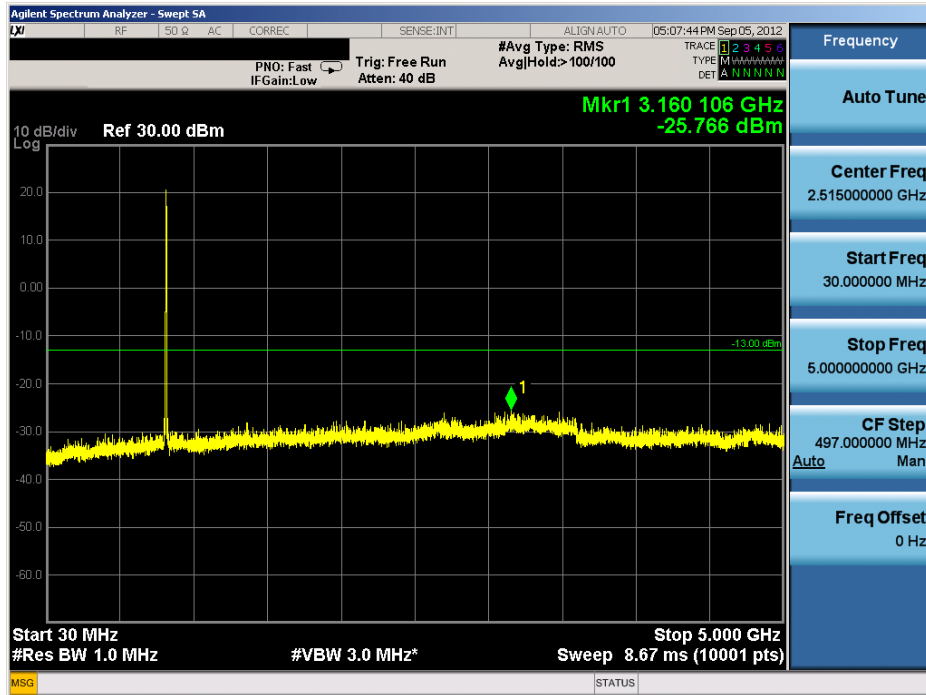


Plot 7-29. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

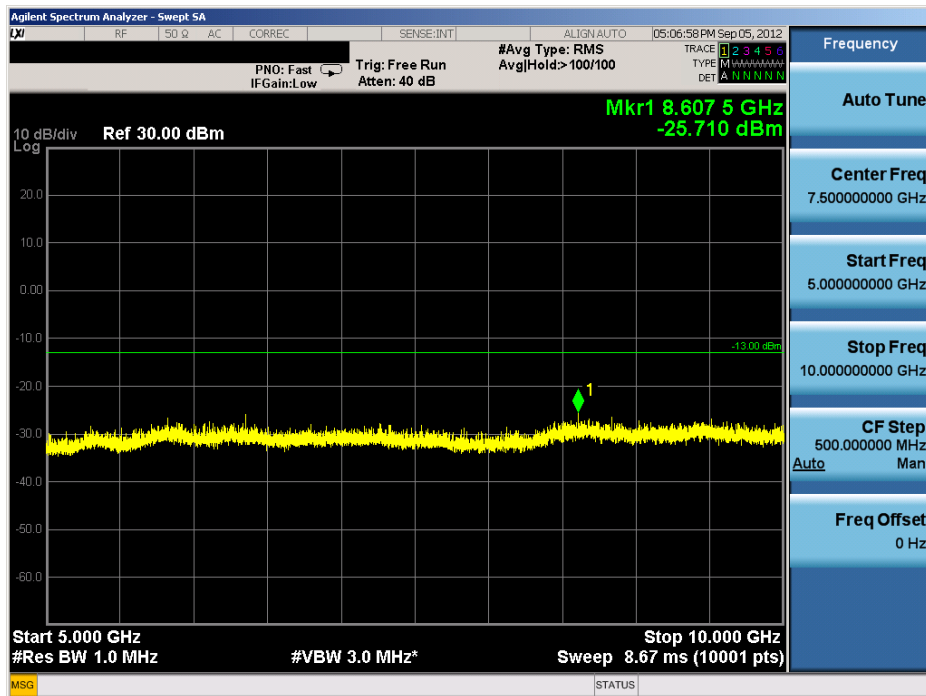


Plot 7-30. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 51 of 117

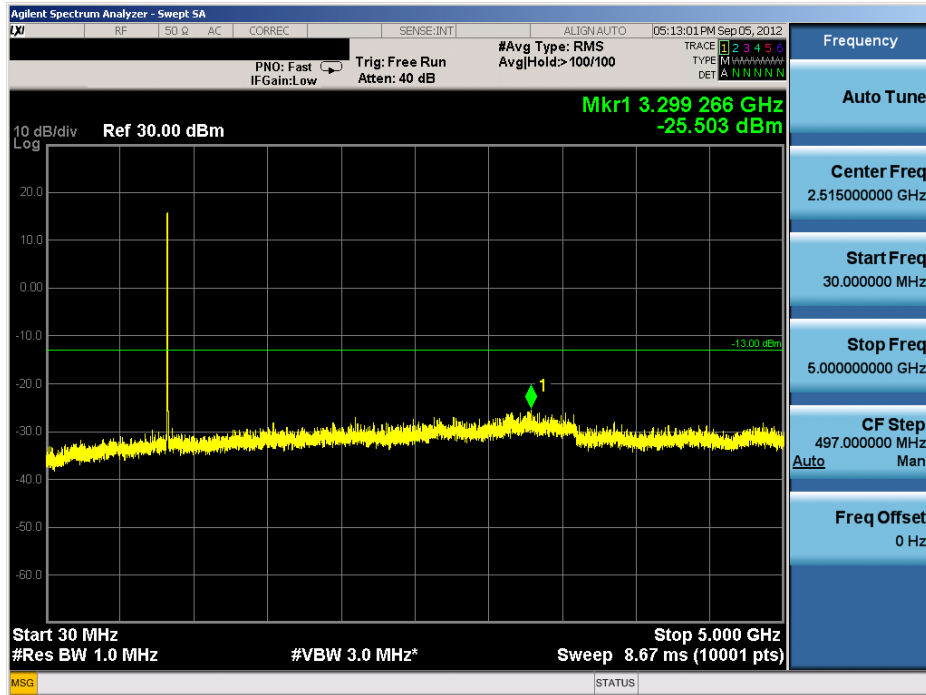


Plot 7-31. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

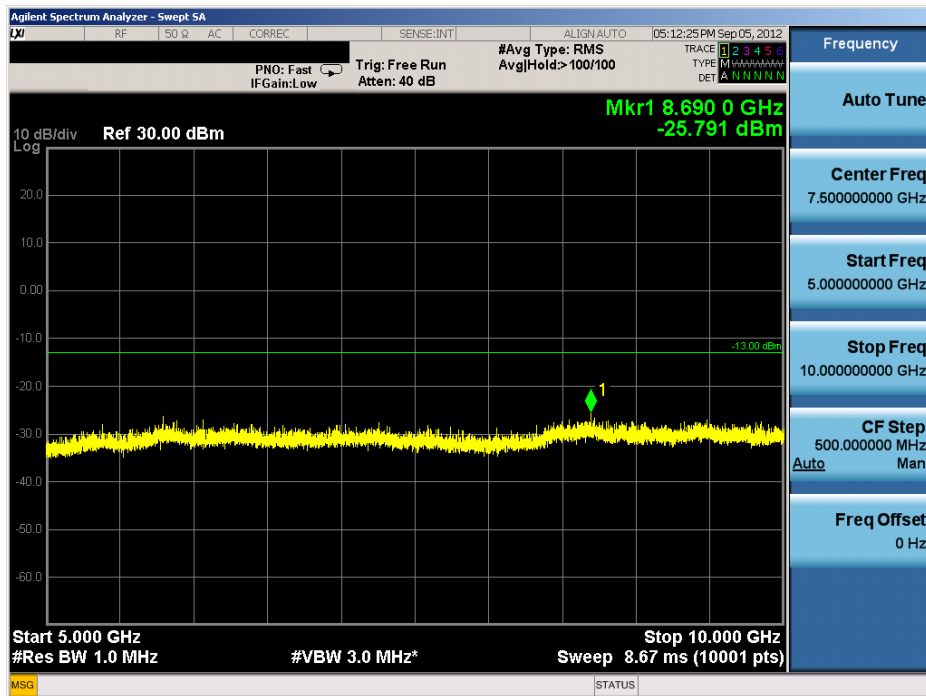


Plot 7-32. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 52 of 117

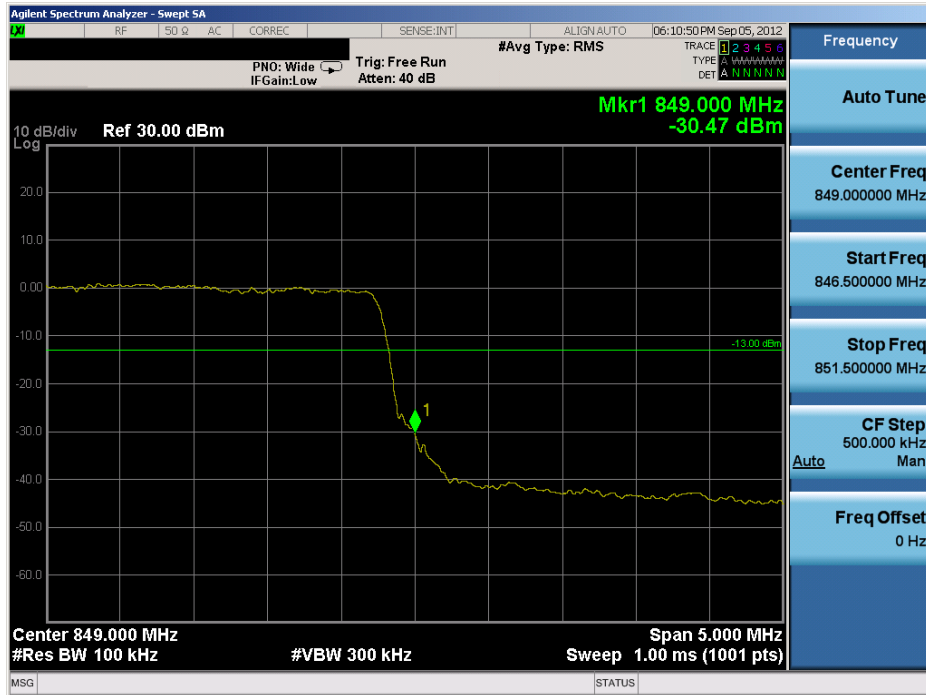


Plot 7-33. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

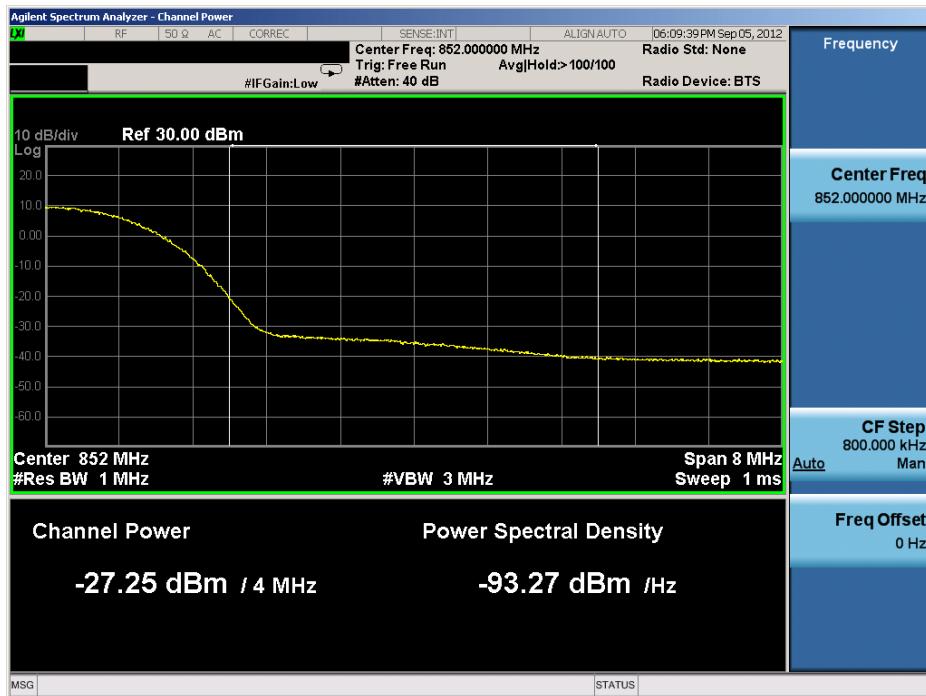


Plot 7-34. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 53 of 117

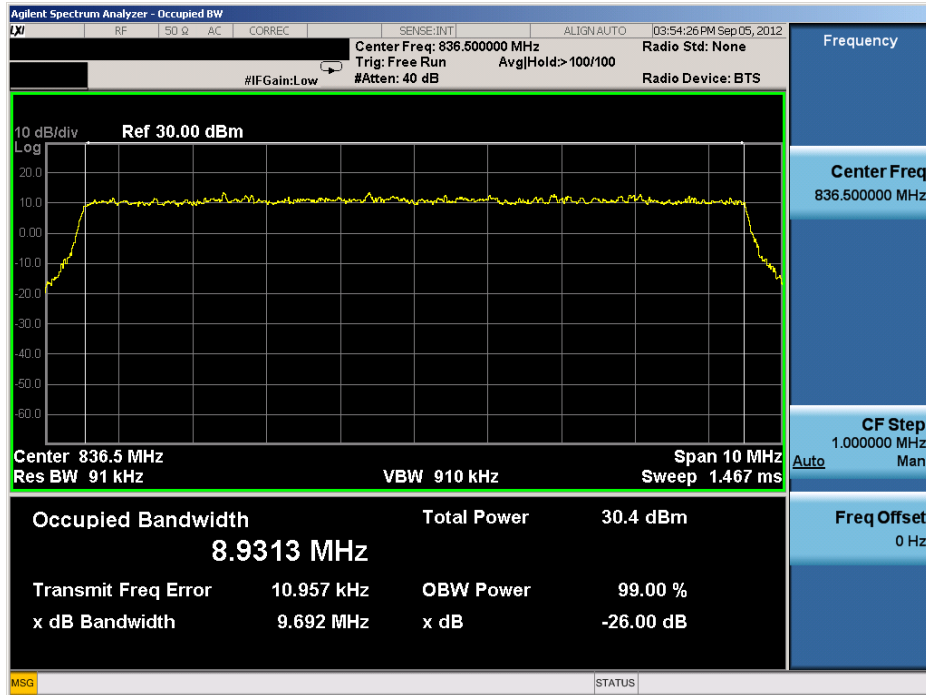


Plot 7-35. Upper Band Edge Plot (QPSK – RB Size 25)

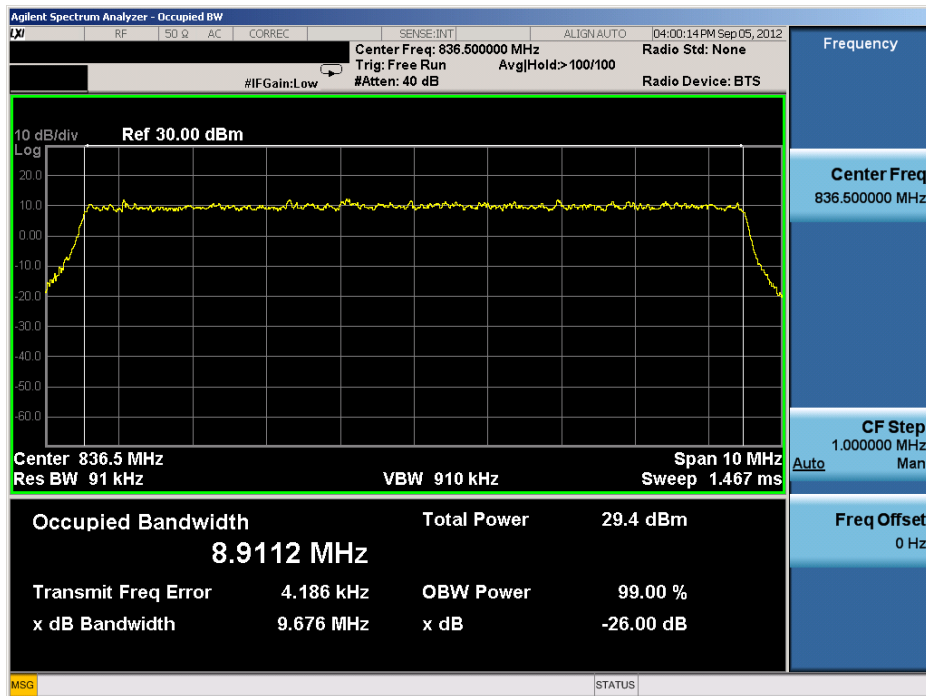


Plot 7-36. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 54 of 117

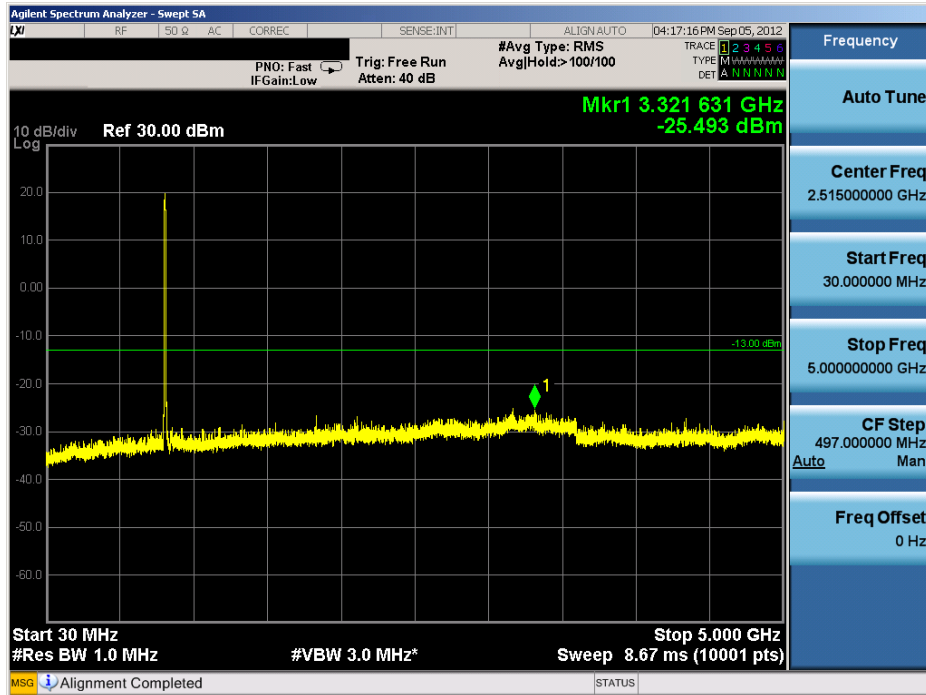


Plot 7-39. Occupied Bandwidth Plot (QPSK – RB Size 50)

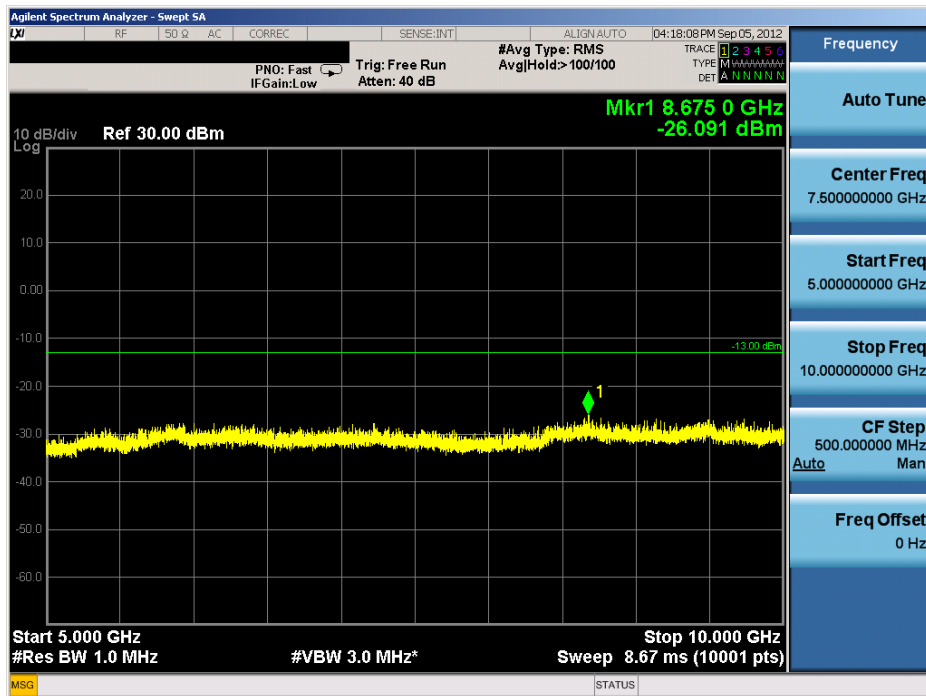


Plot 7-40. Occupied Bandwidth Plot (16-QAM – RB Size 50)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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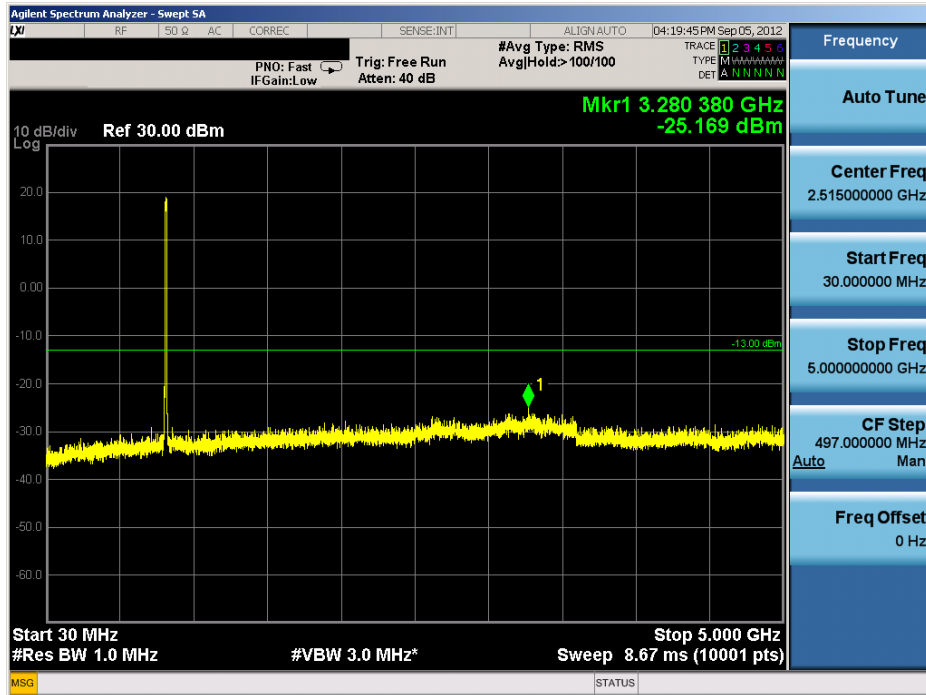


Plot 7-41. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

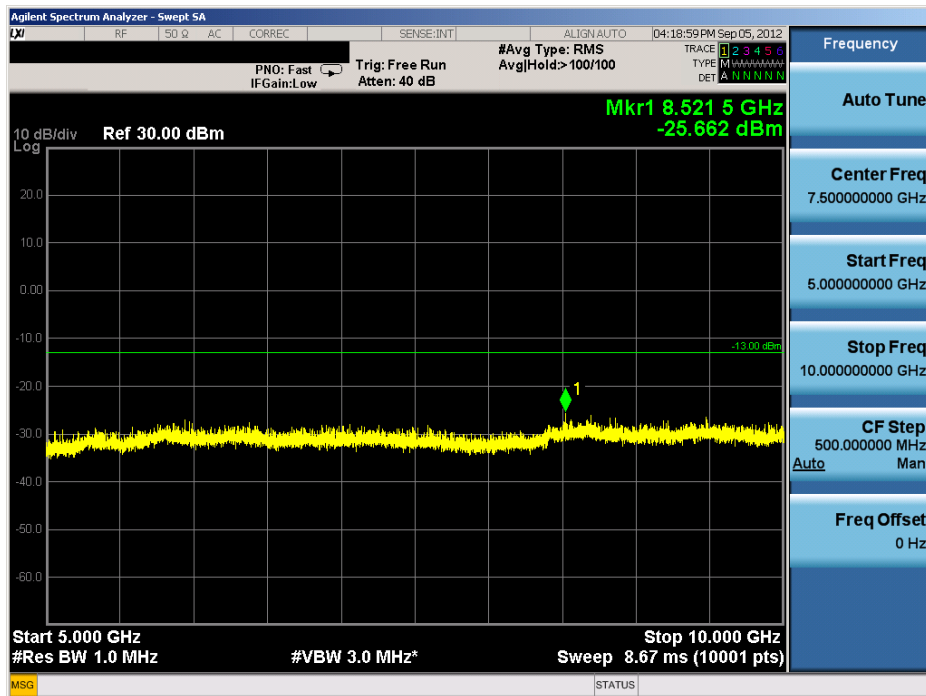


Plot 7-42. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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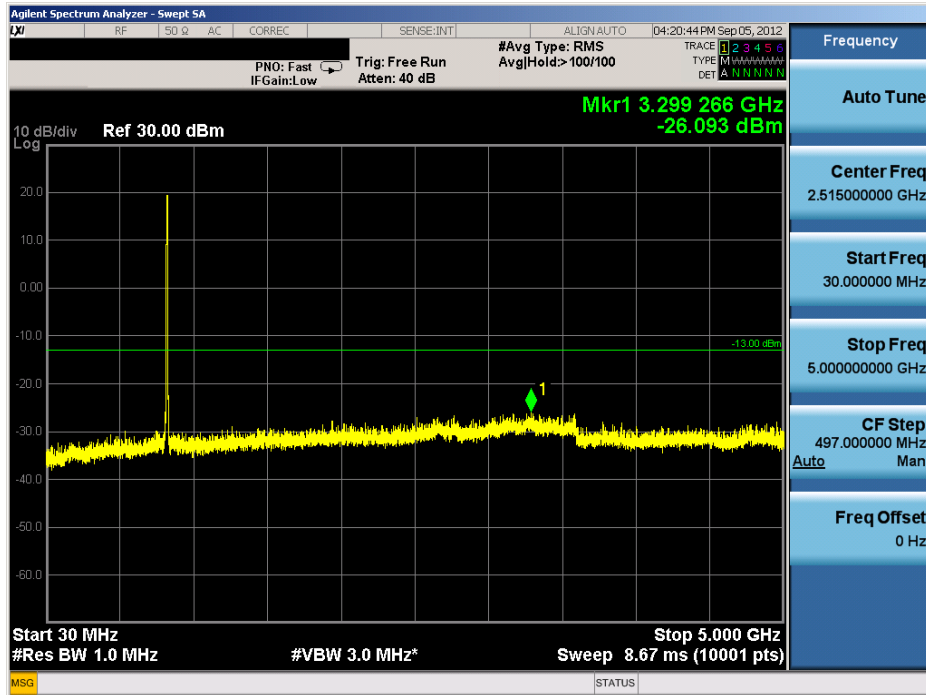


Plot 7-43. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

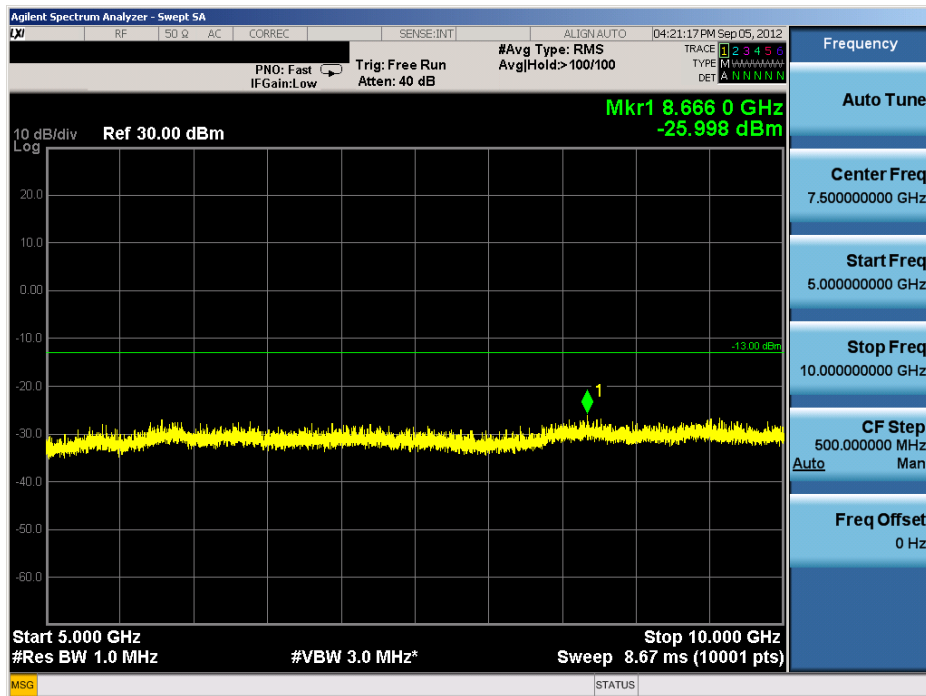


Plot 7-44. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)



FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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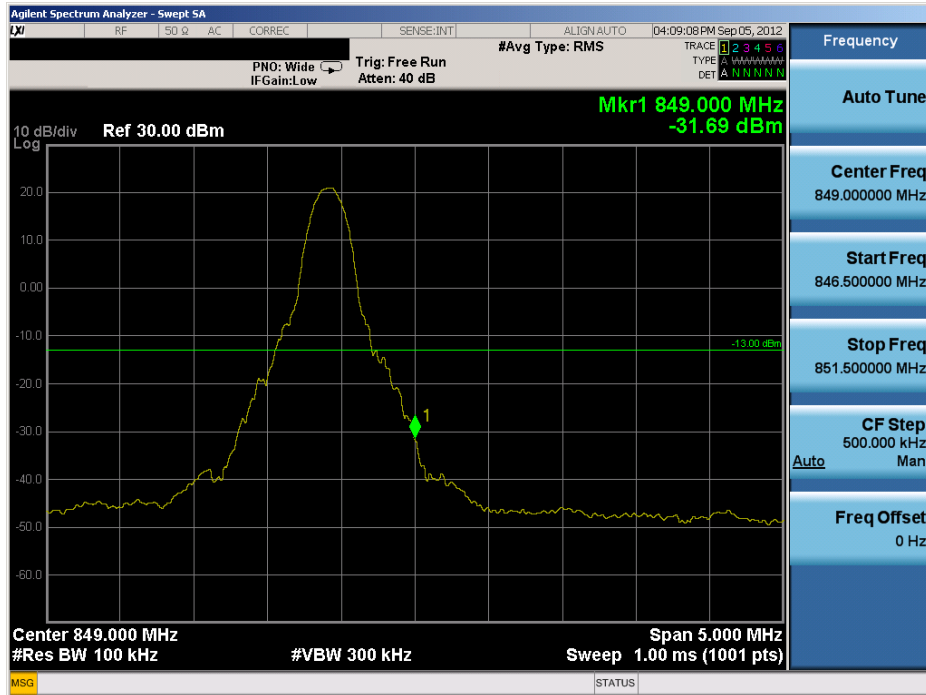


Plot 7-45. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

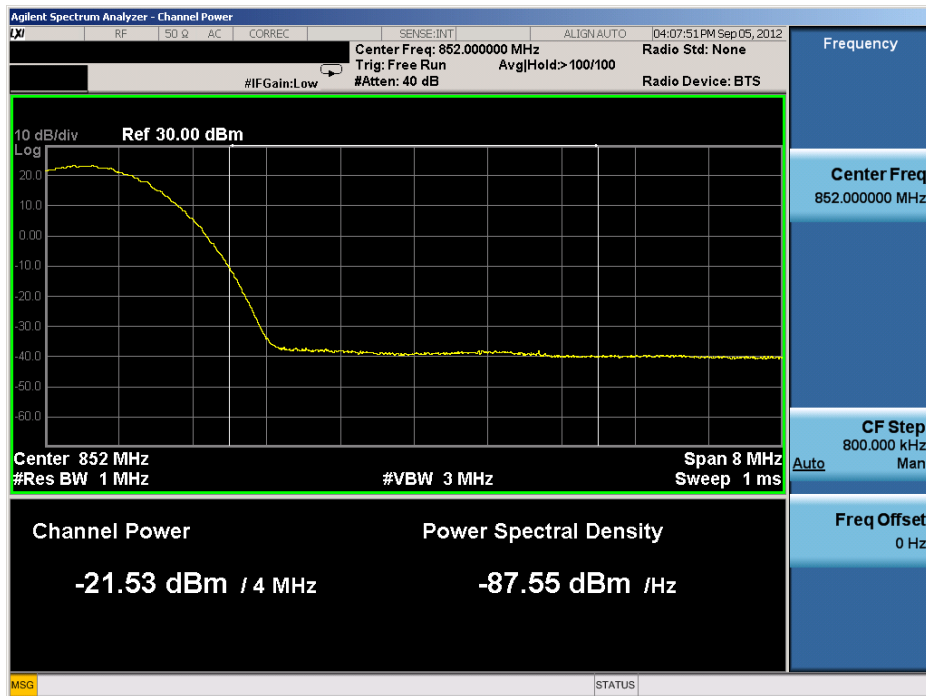


Plot 7-46. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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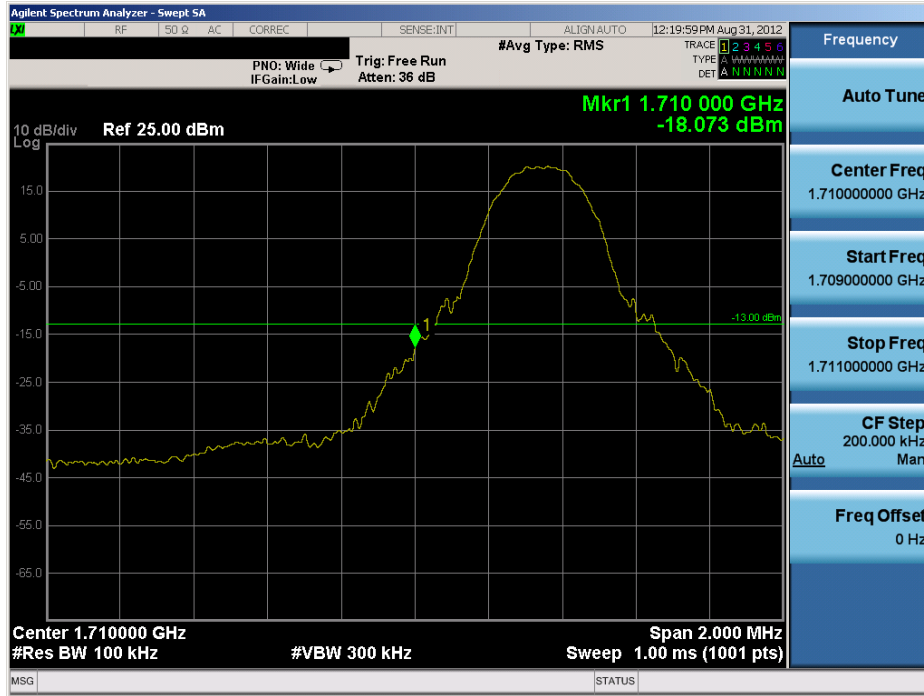
Plot 7-47. Upper Band Edge Plot (QPSK – RB Size 1, Offset 49)



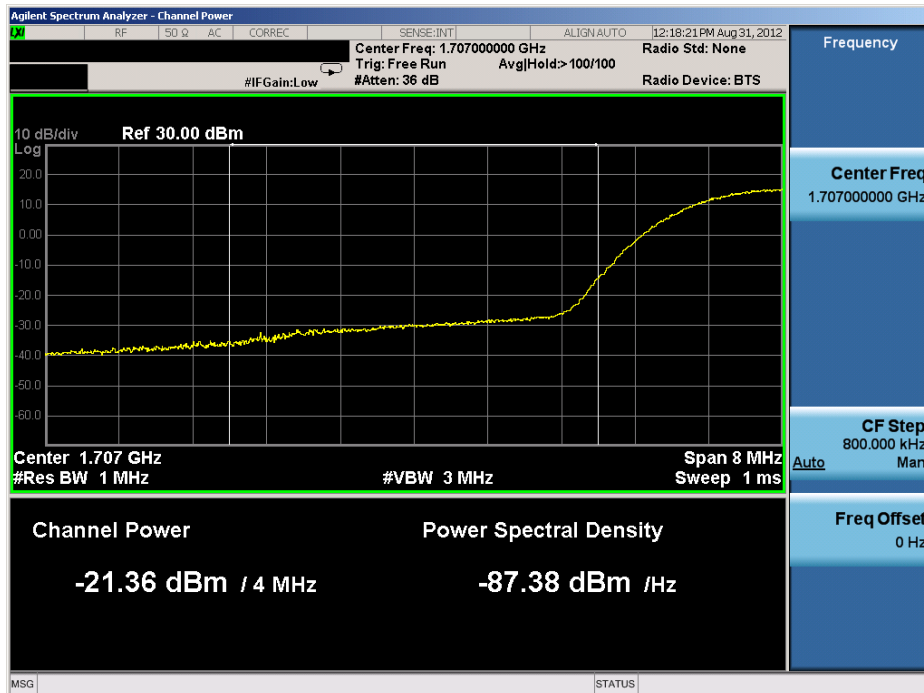
Plot 7-48. Upper Band Edge Plot (QPSK – RB Size 1, Offset 49)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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BAND 4 – 5 MHz BW

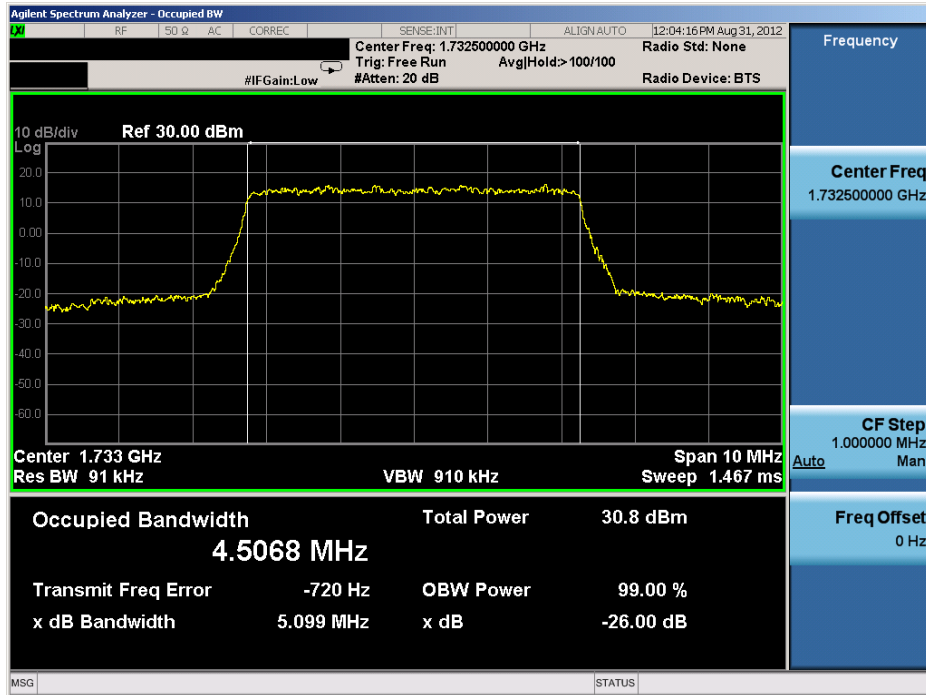


Plot 7-49. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

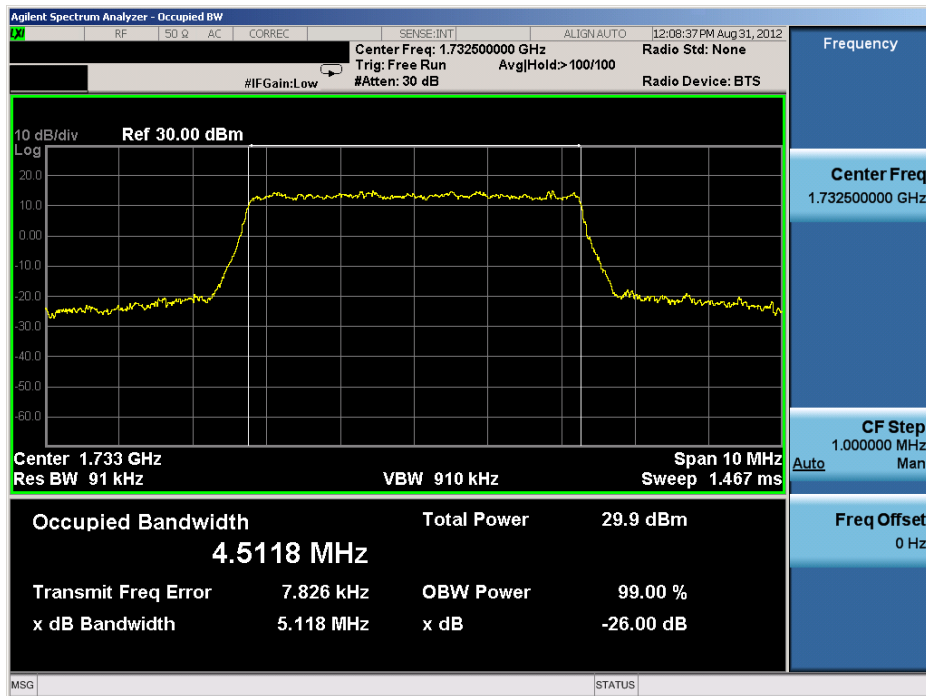


Plot 7-50. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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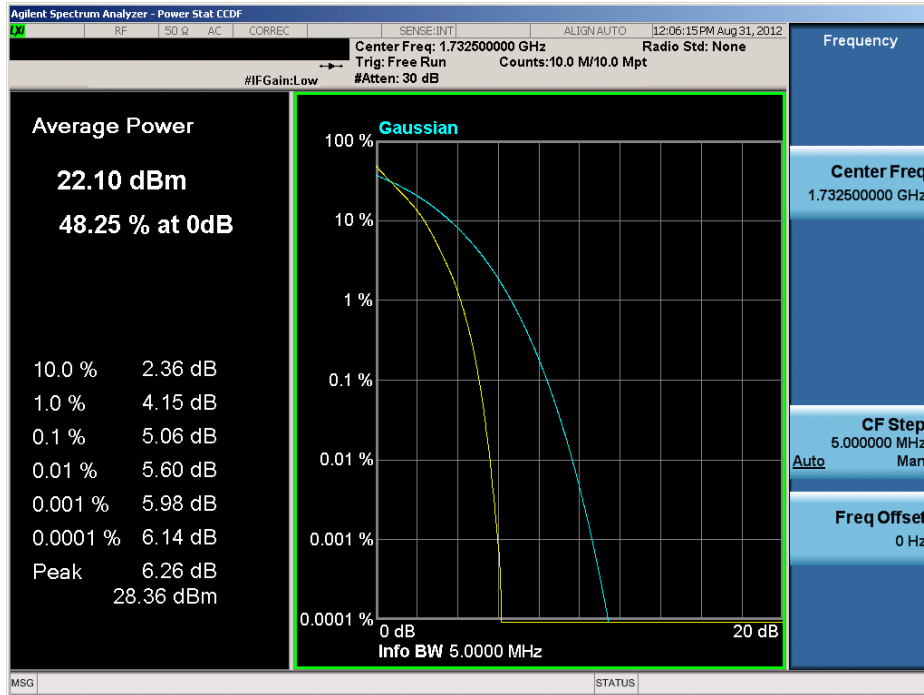


Plot 7-51. Occupied Bandwidth Plot (QPSK – RB Size 25)

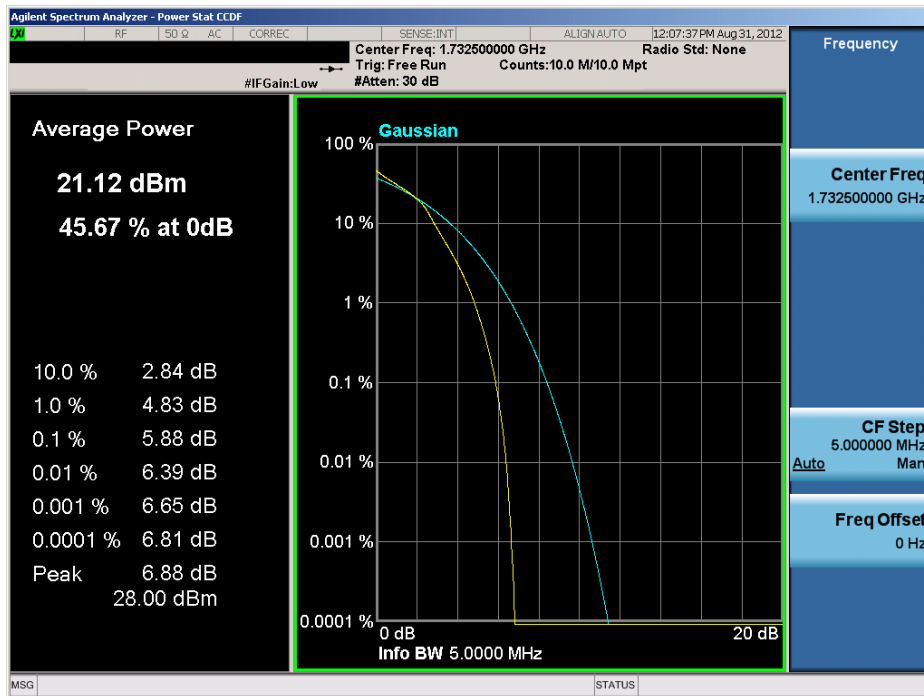


Plot 7-52. Occupied Bandwidth Plot (16-QAM – RB Size 25)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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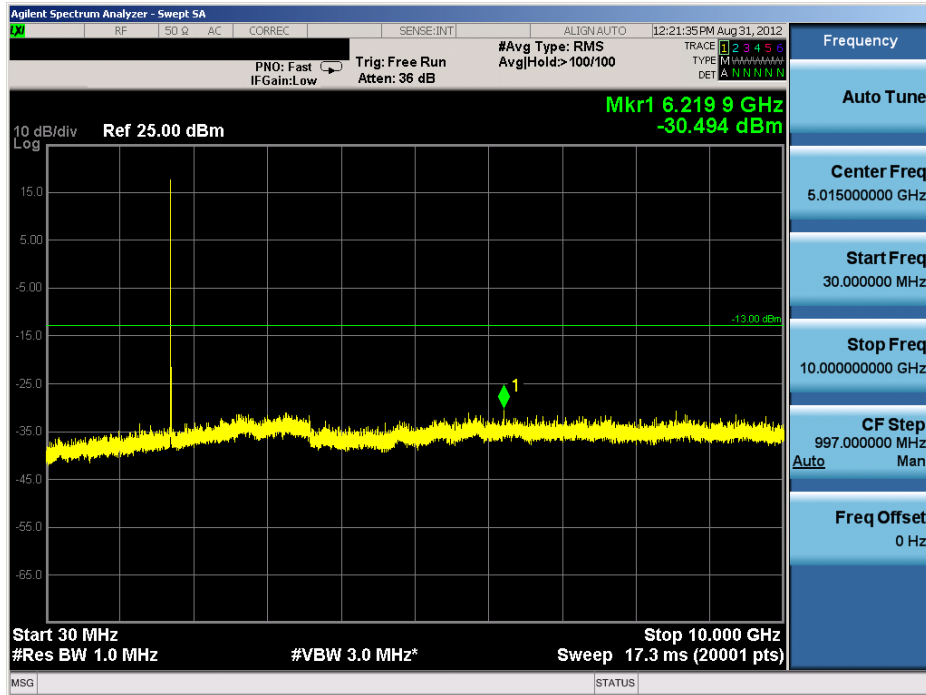


Plot 7-53. Peak to Average Ratio Plot (QPSK - RB Size 25)

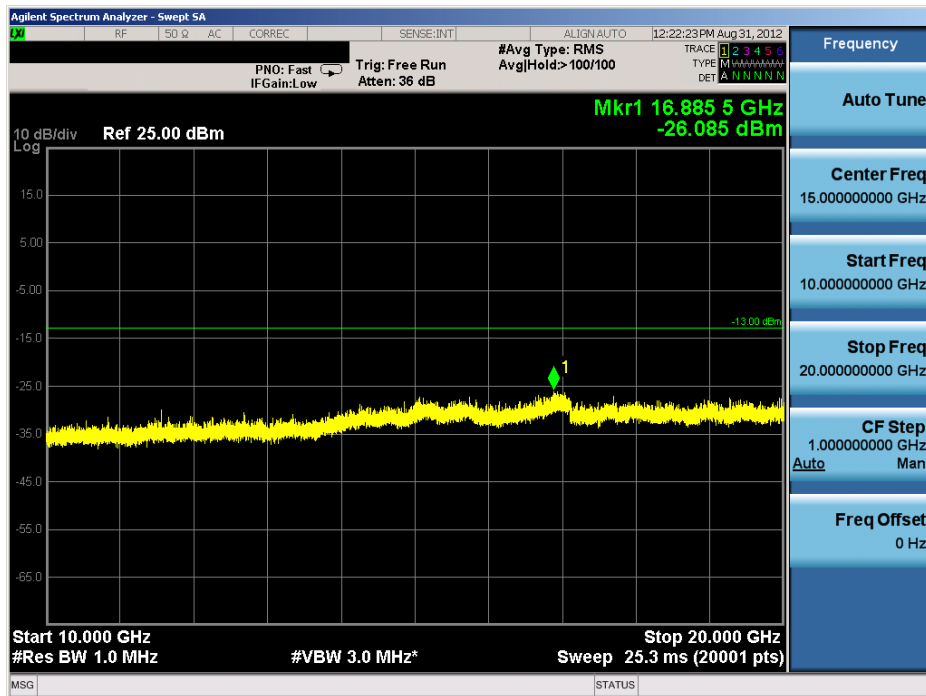


Plot 7-54. Peak to Average Ratio Plot (16QAM - RB Size 25)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 63 of 117

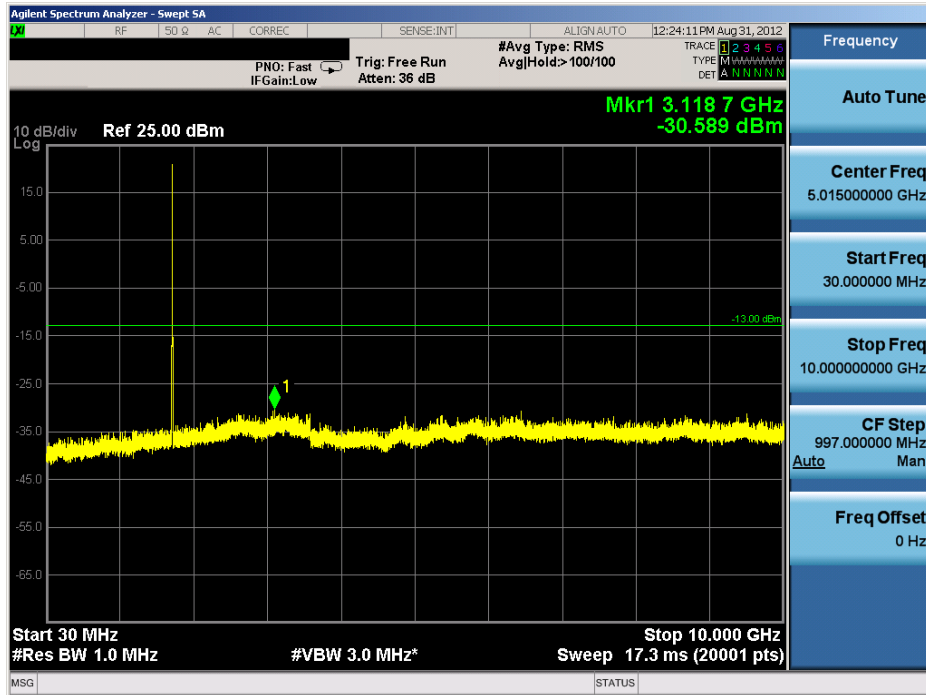


Plot 7-55. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

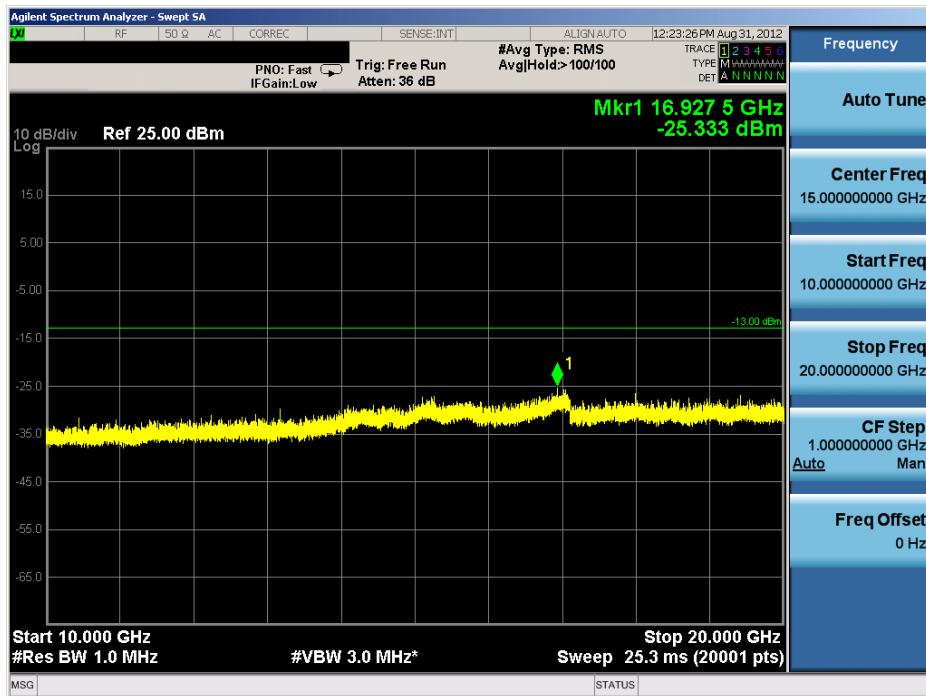


Plot 7-56. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 64 of 117

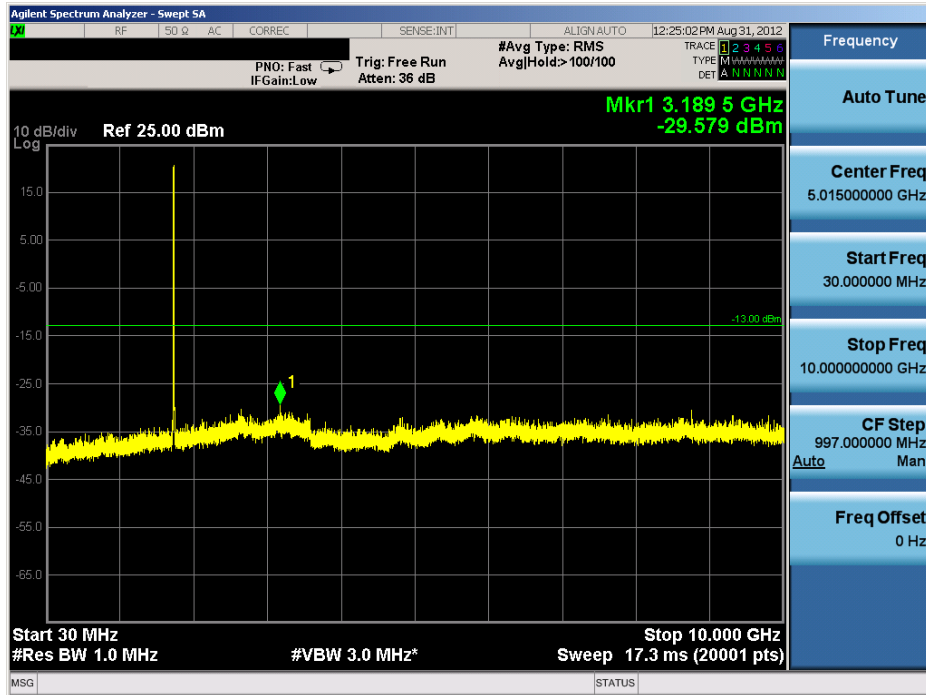


Plot 7-57. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

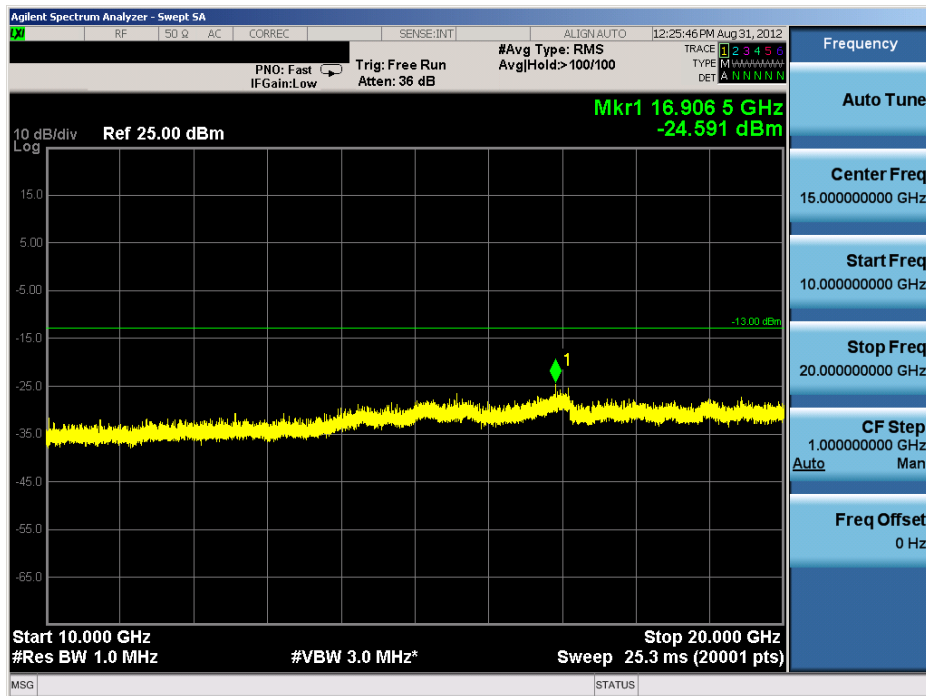


Plot 7-58. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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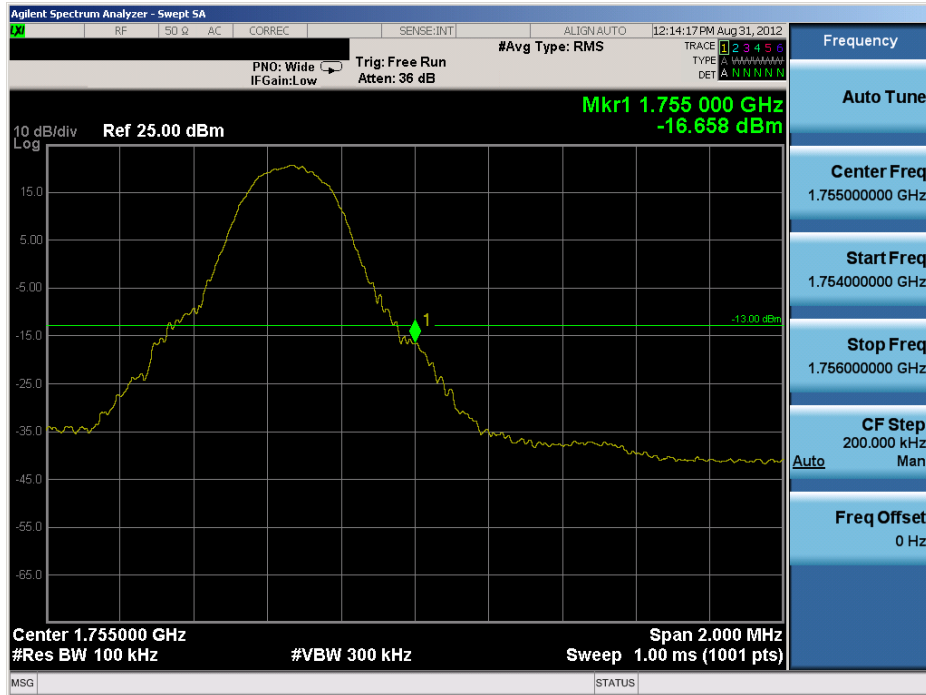


Plot 7-59. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

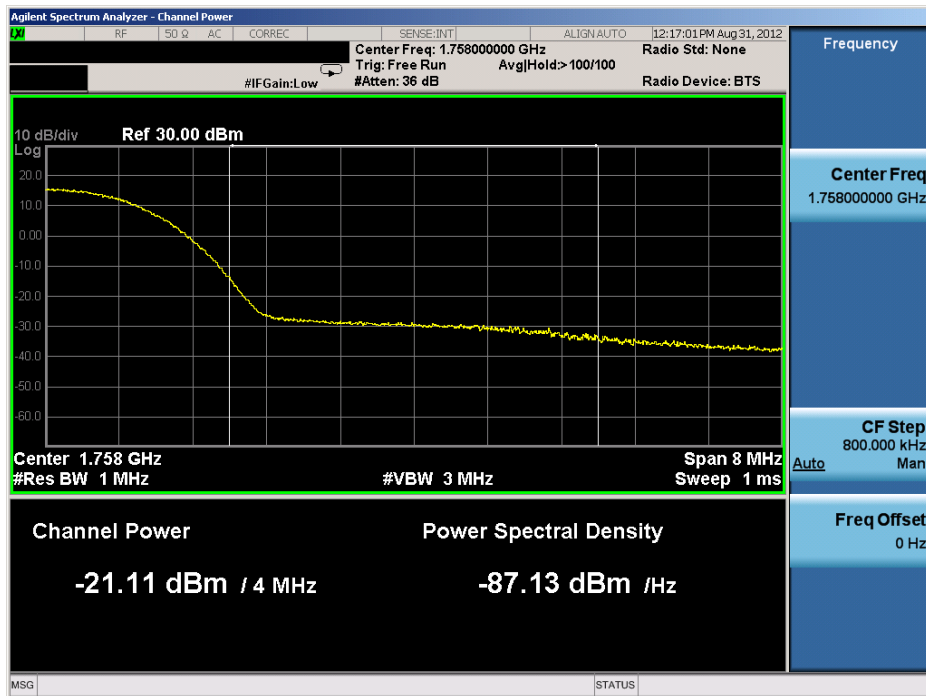


Plot 7-60. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 7-61. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)



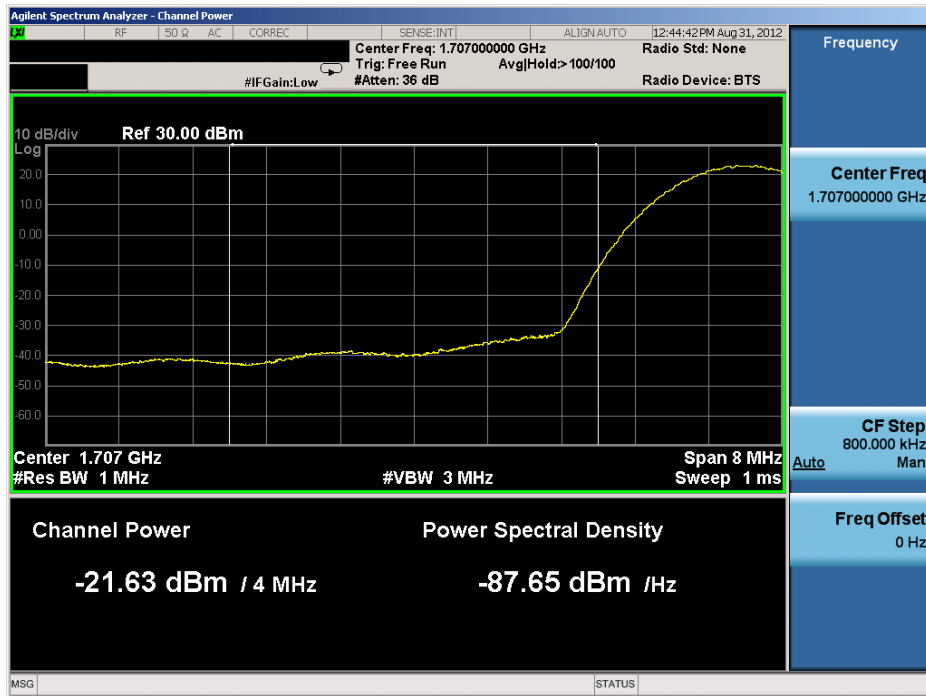
Plot 7-62. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 67 of 117

BAND 4 – 10 MHz BW

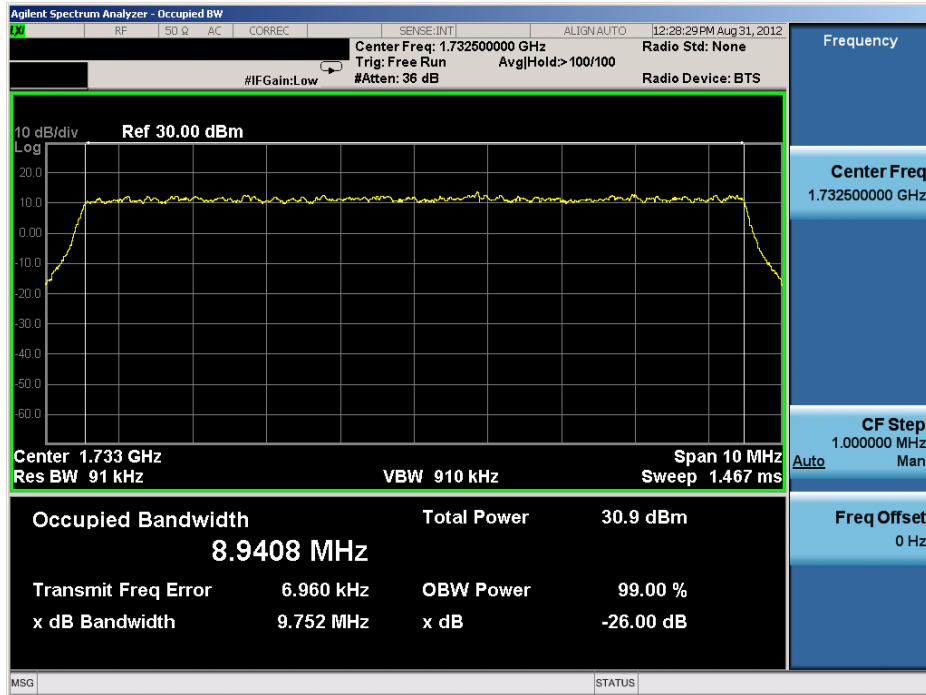


Plot 7-63. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

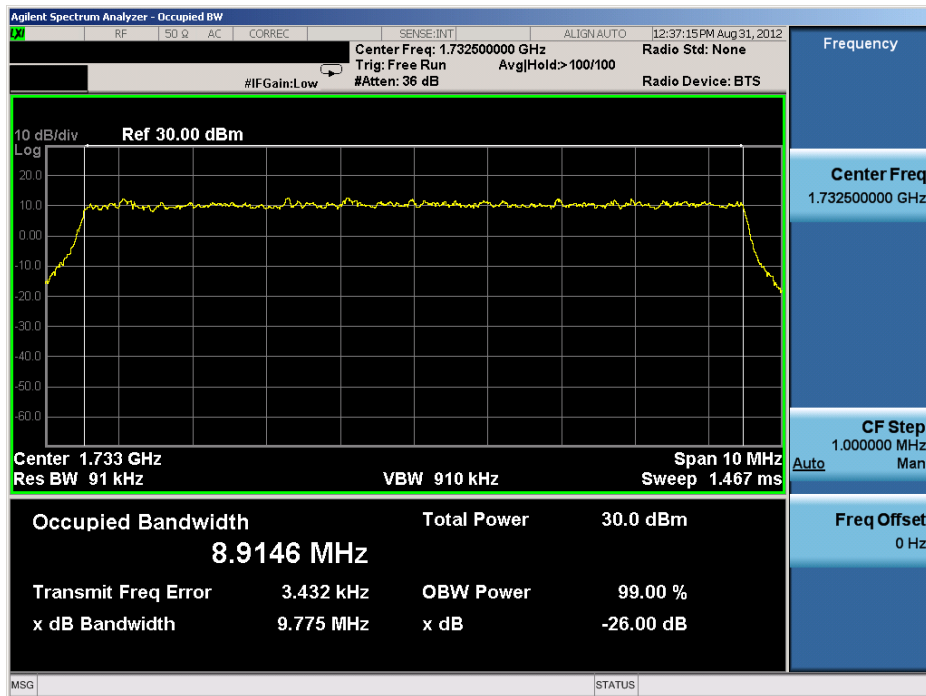


Plot 7-64. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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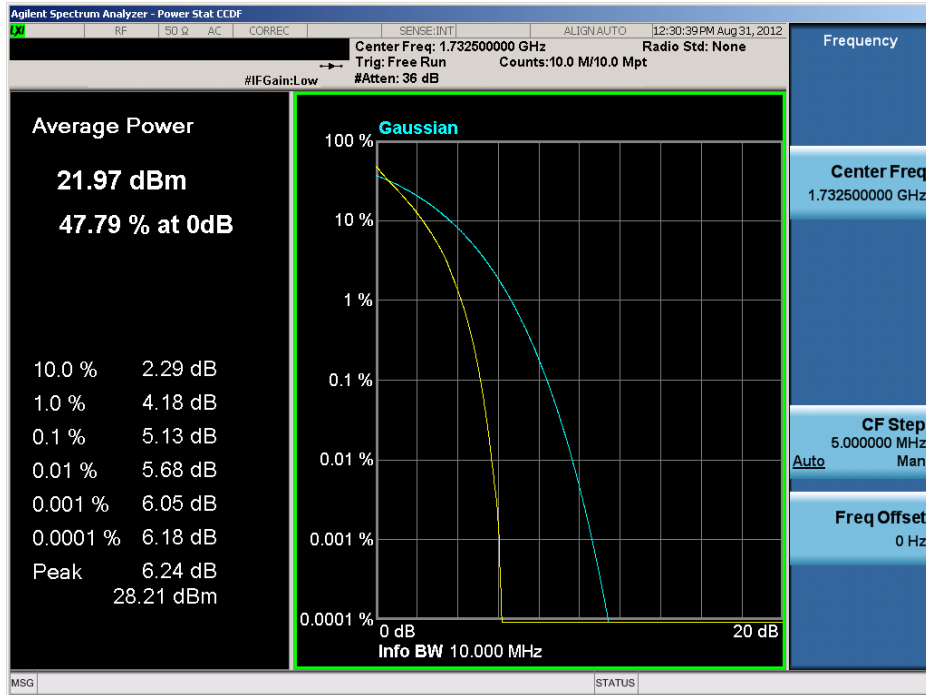


Plot 7-65. Occupied Bandwidth Plot (QPSK – RB Size 50)

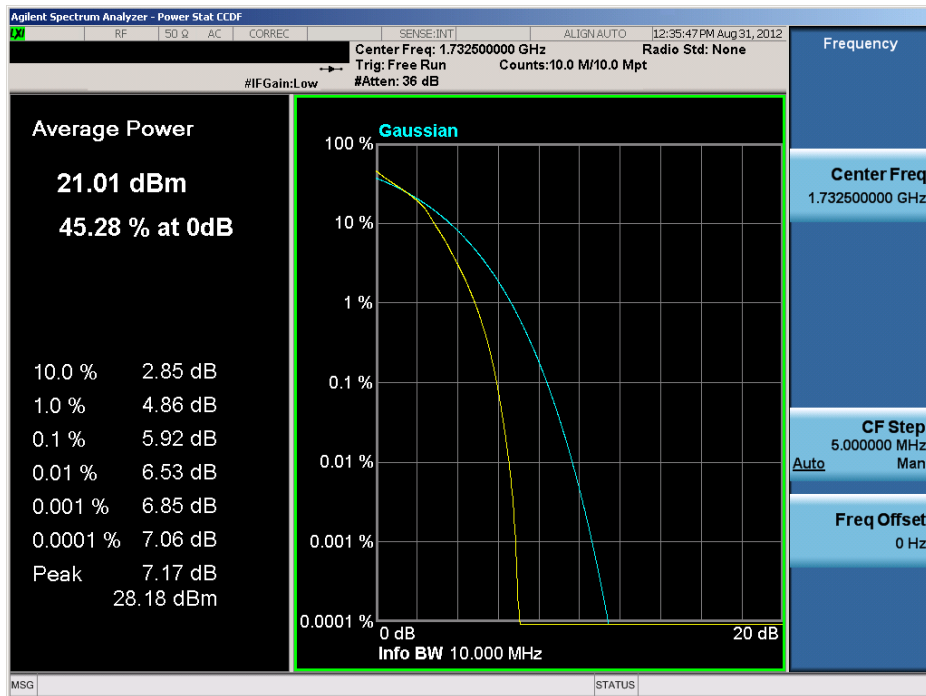


Plot 7-66. Occupied Bandwidth Plot (16-QAM – RB Size 50)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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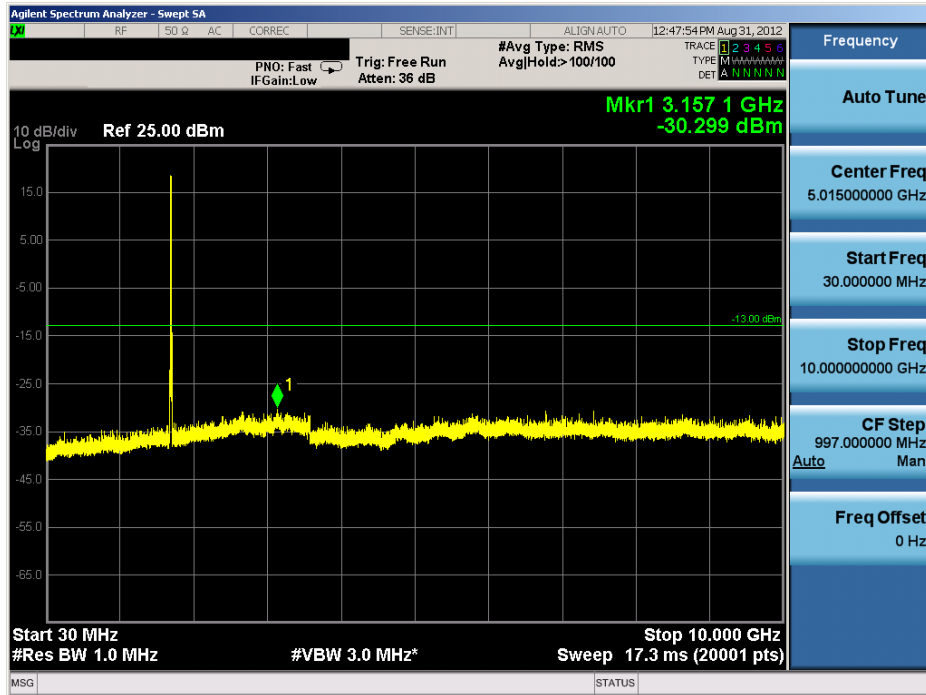


Plot 7-67. Peak to Average Ratio Plot (QPSK - RB Size 50)

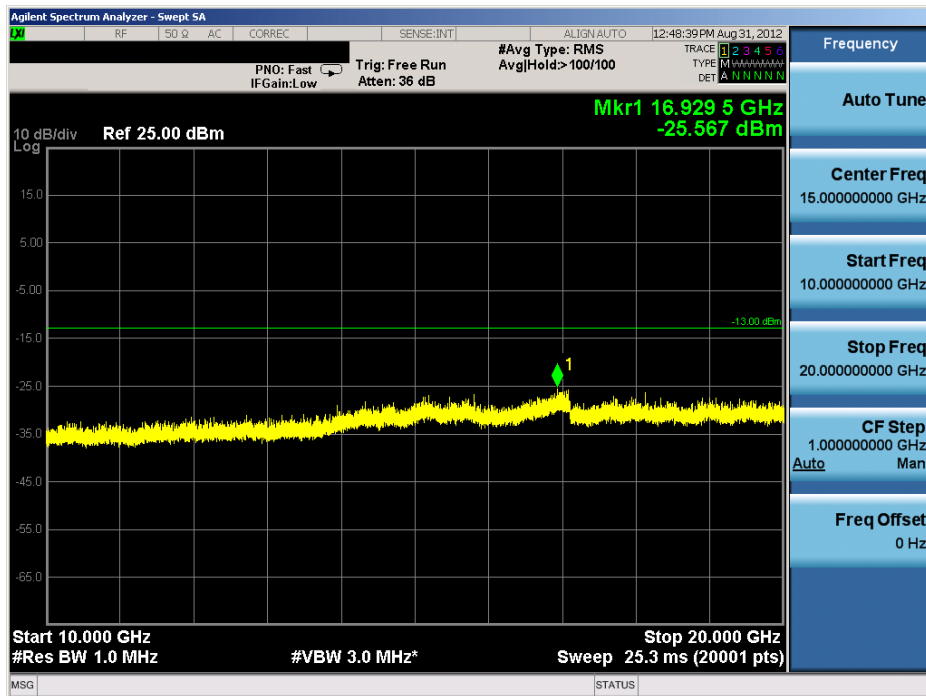


Plot 7-68. Peak to Average Ratio Plot (16QAM - RB Size 50)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 70 of 117

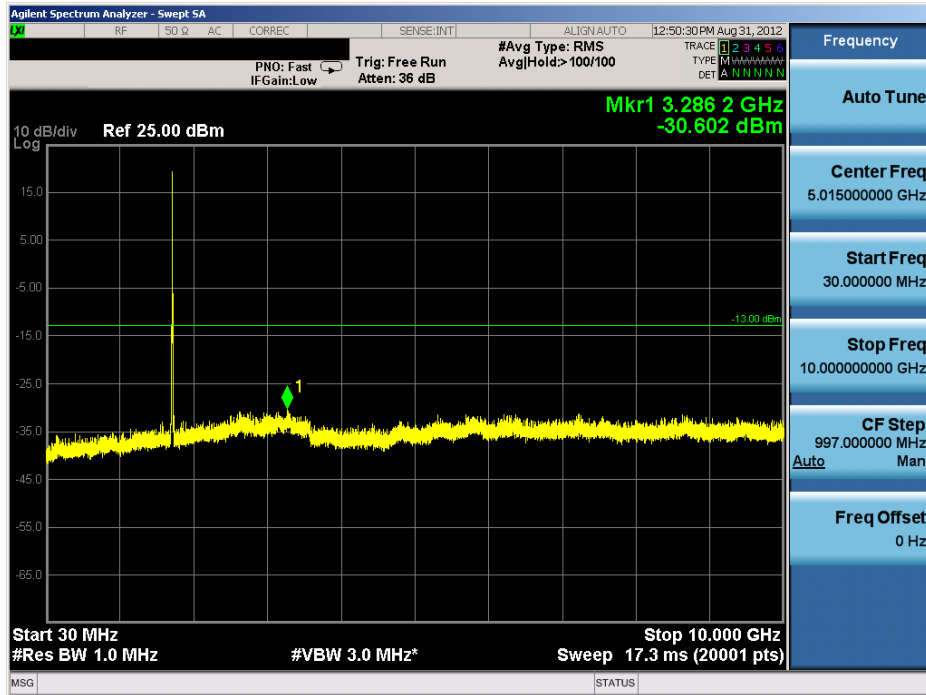


Plot 7-69. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0– Low Channel)

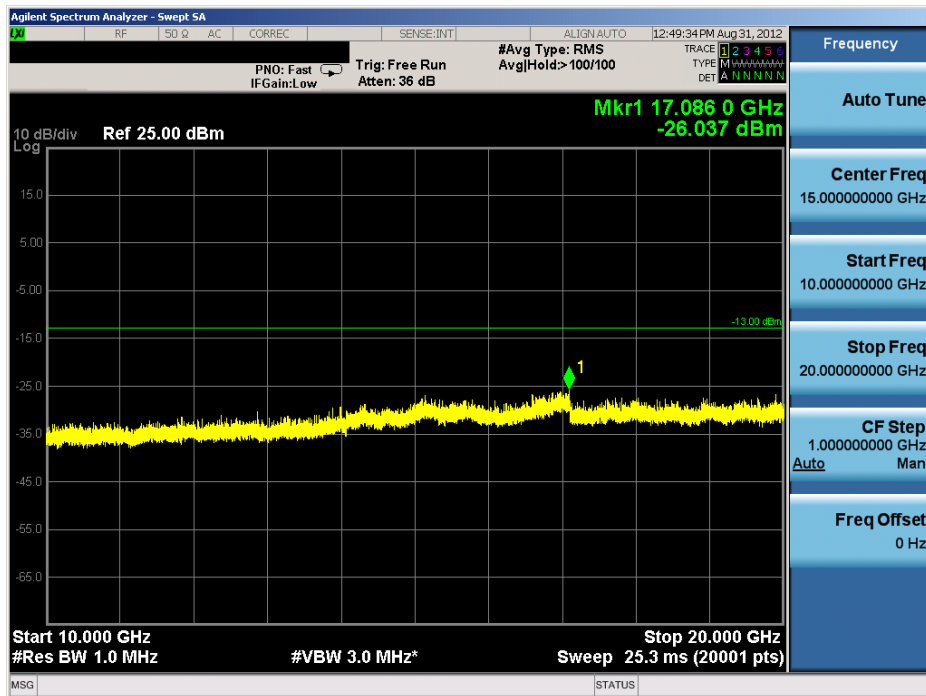


Plot 7-70. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)



FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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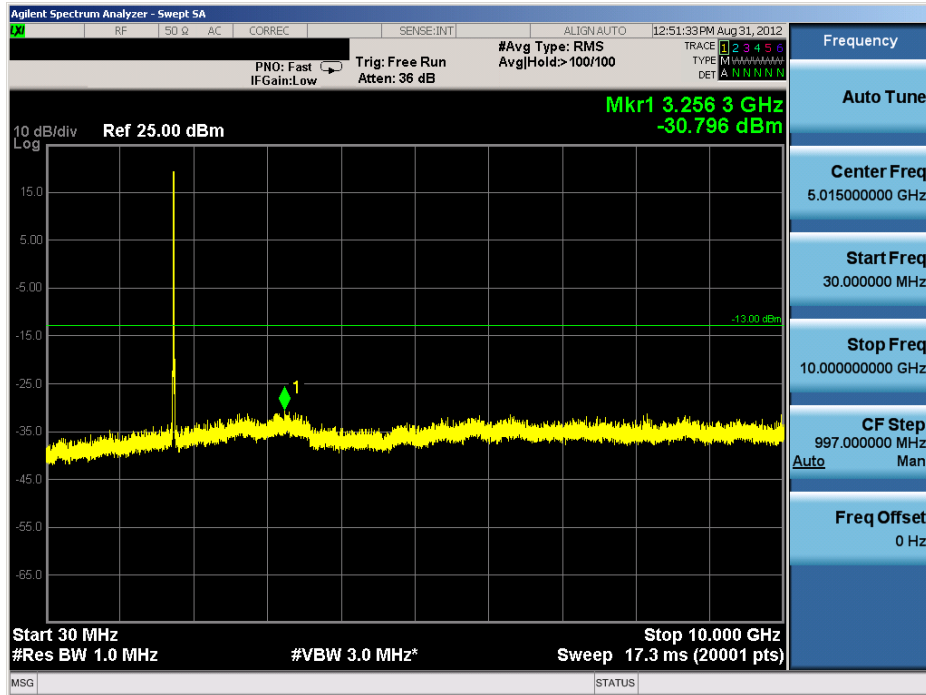


Plot 7-71. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

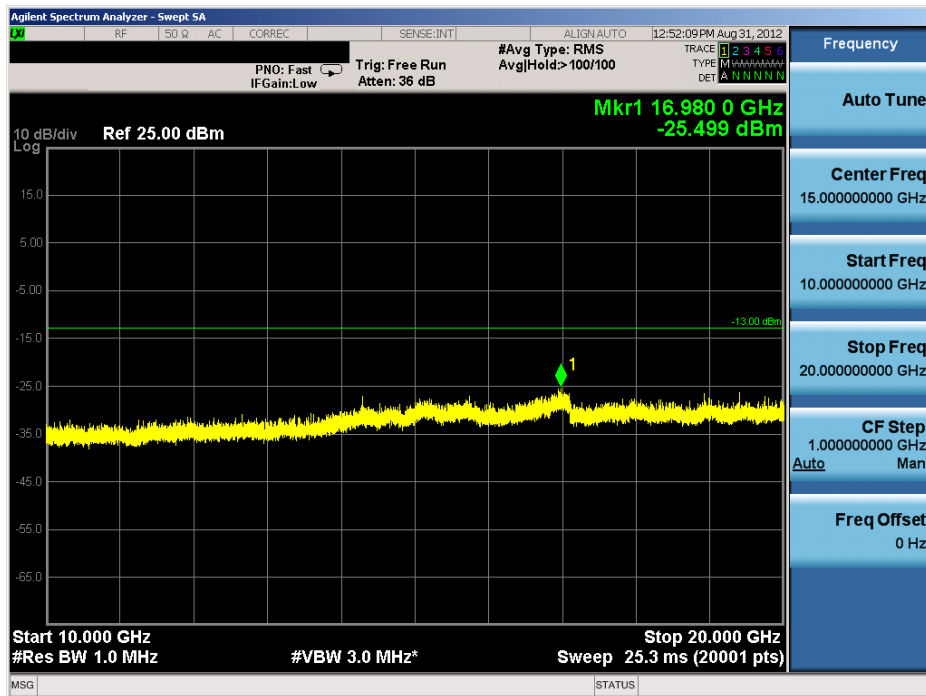


Plot 7-72. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)



FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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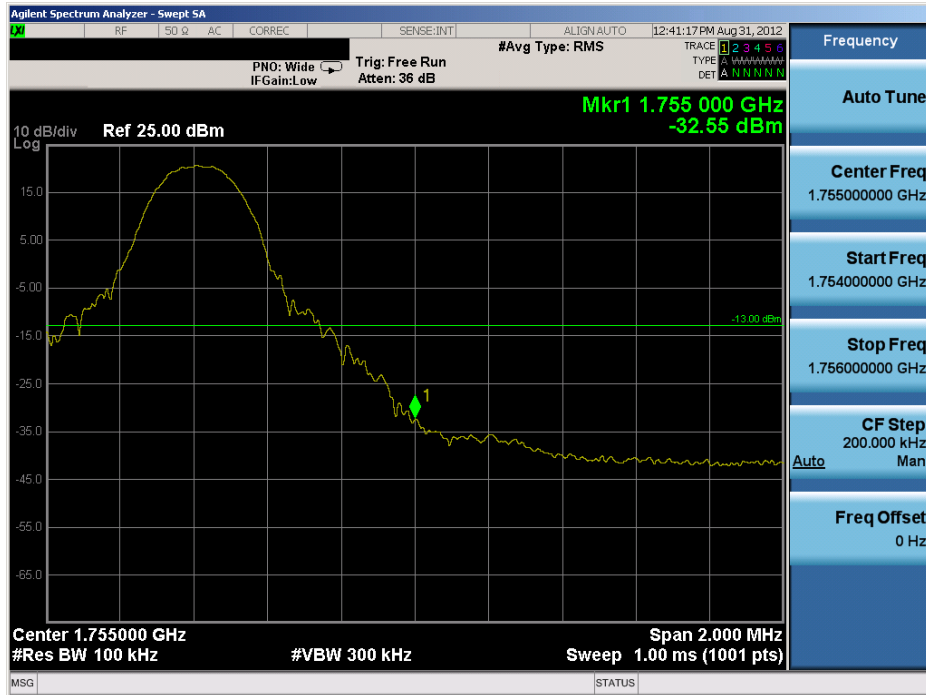


Plot 7-73. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

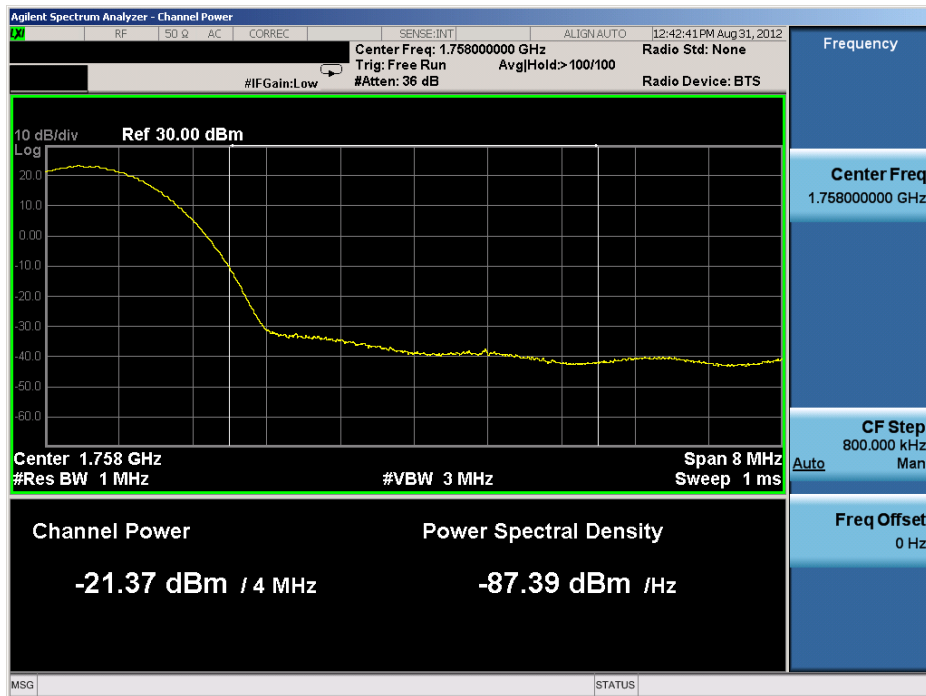


Plot 7-74. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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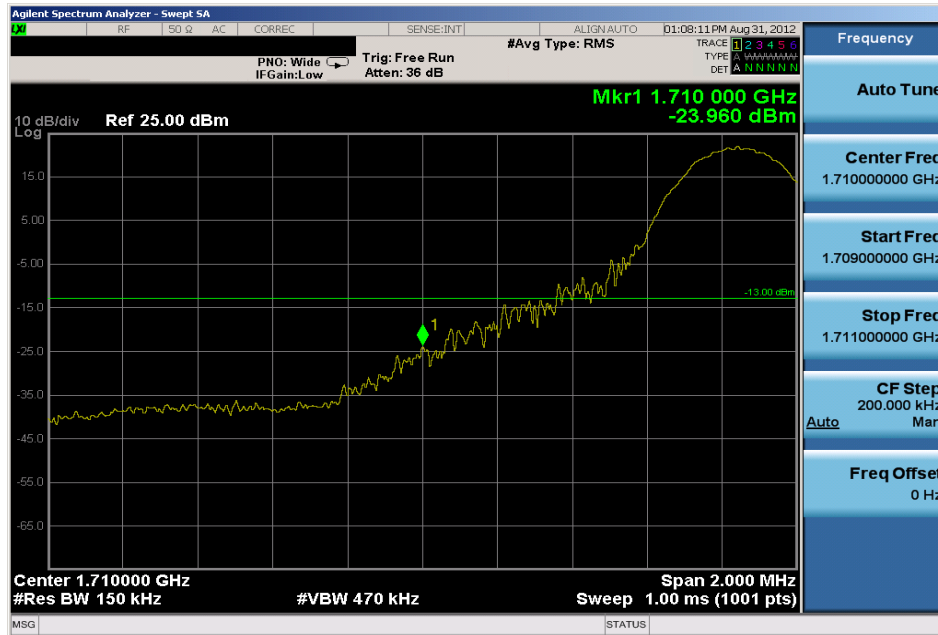
Plot 7-75. Upper Band Edge Plot (QPSK – RB Size 1, Offset 49)



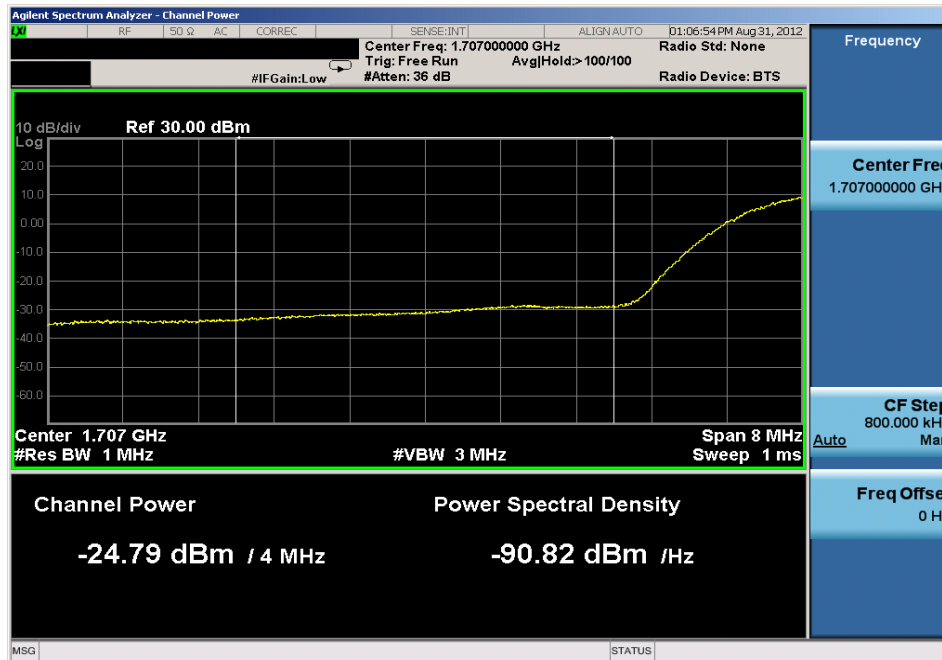
Plot 7-76. Upper Band Edge Plot (QPSK – RB Size 1, Offset 49)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 74 of 117

BAND 4 – 15 MHz BW

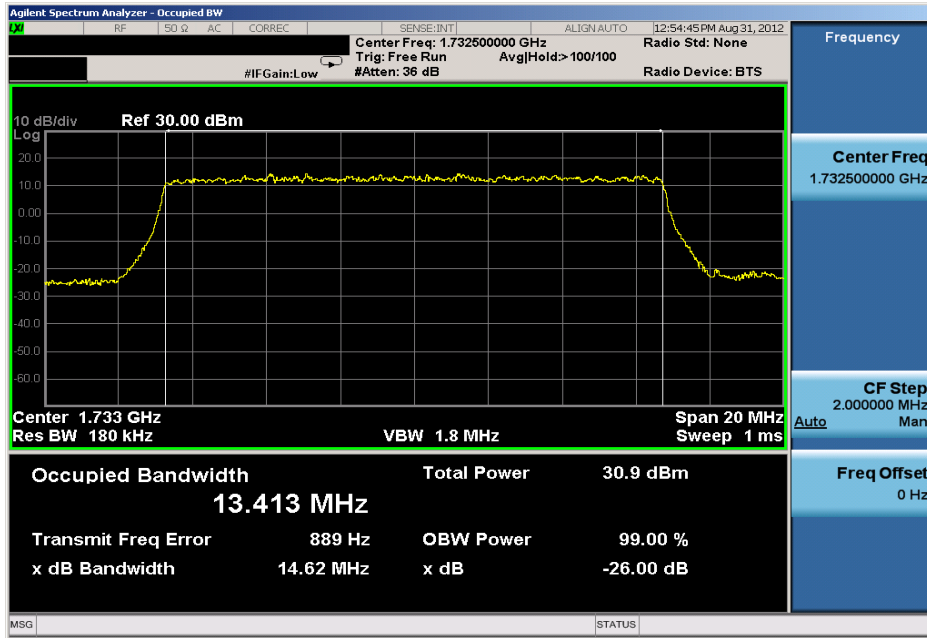


Plot 7-77. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

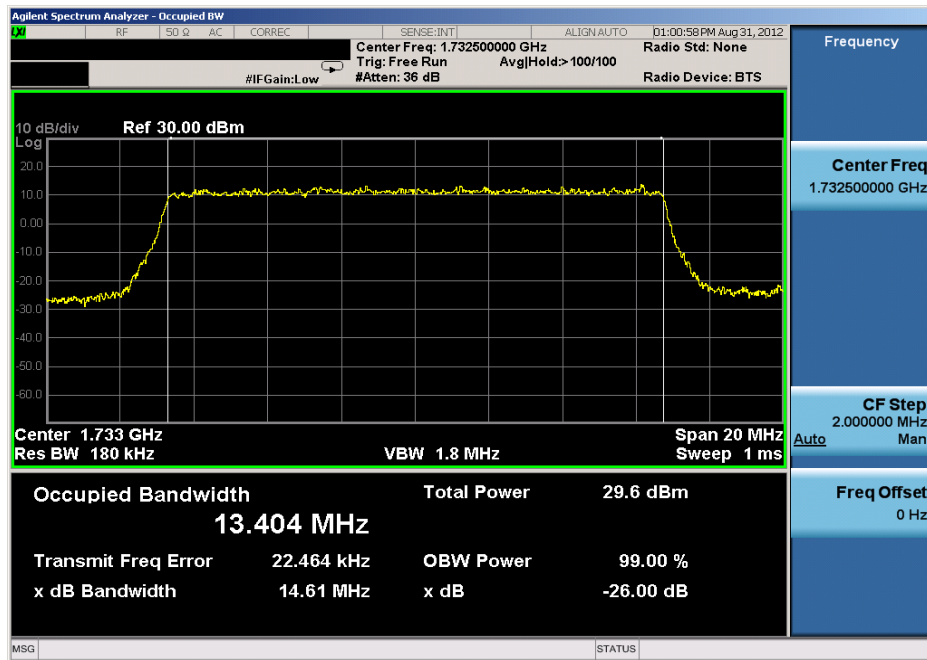


Plot 7-78. Lower Band Edge Plot (QPSK – RB Size 75)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 75 of 117

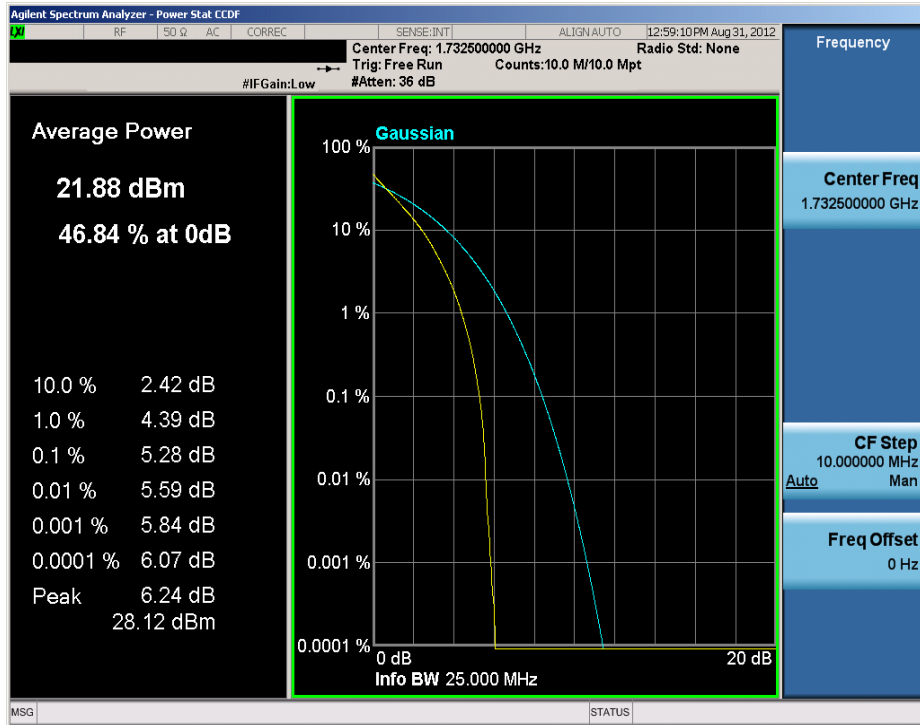


Plot 7-79. Occupied Bandwidth Plot (QPSK – RB Size 75)

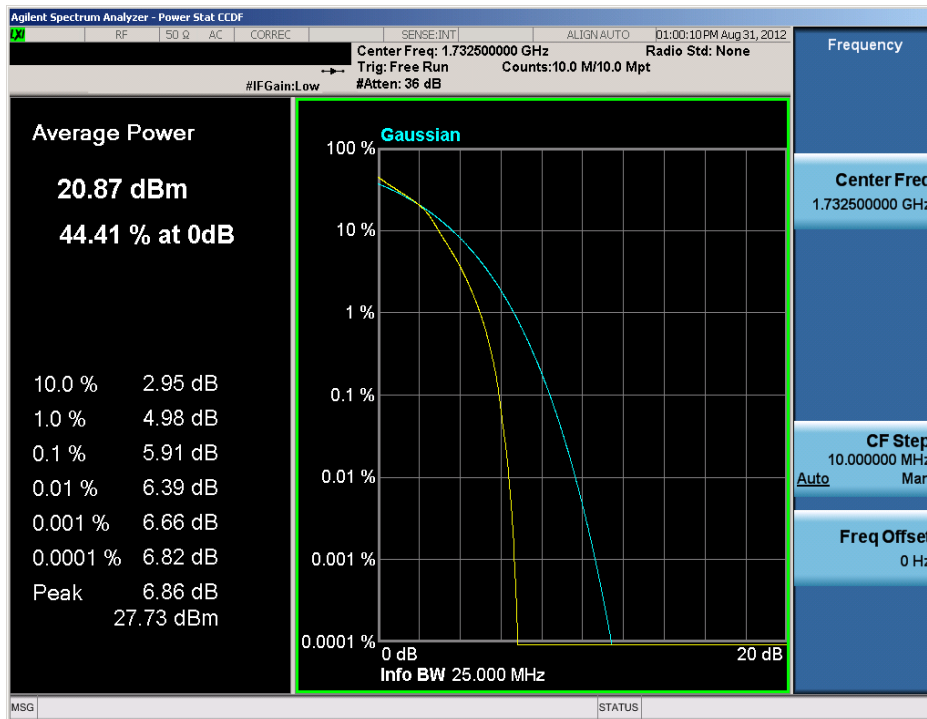


Plot 7-80. Occupied Bandwidth Plot (16-QAM – RB Size 75)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 76 of 117

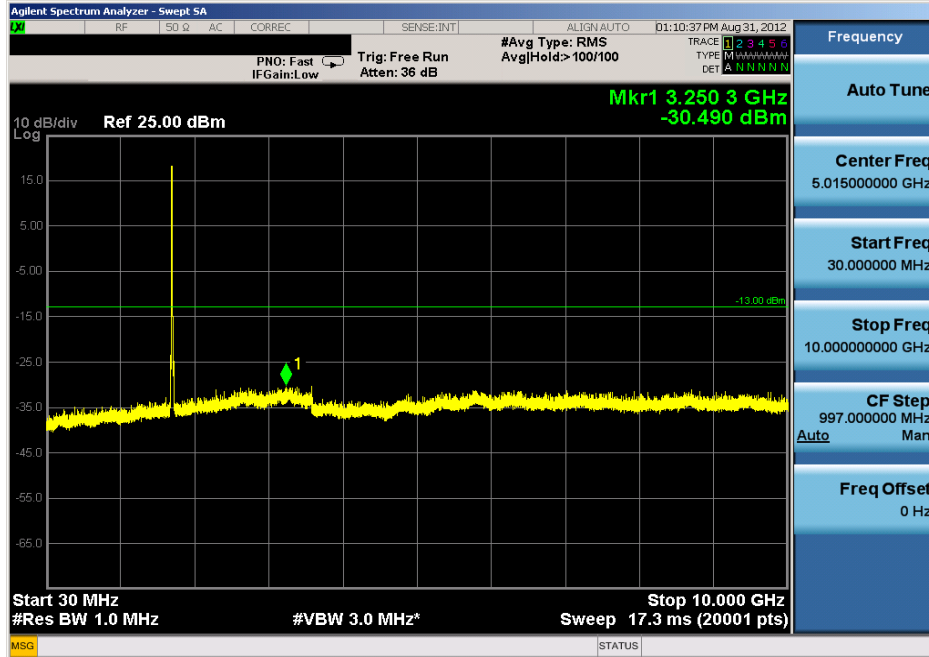


Plot 7-81. Peak to Average Ratio Plot (QPSK - RB Size 75)

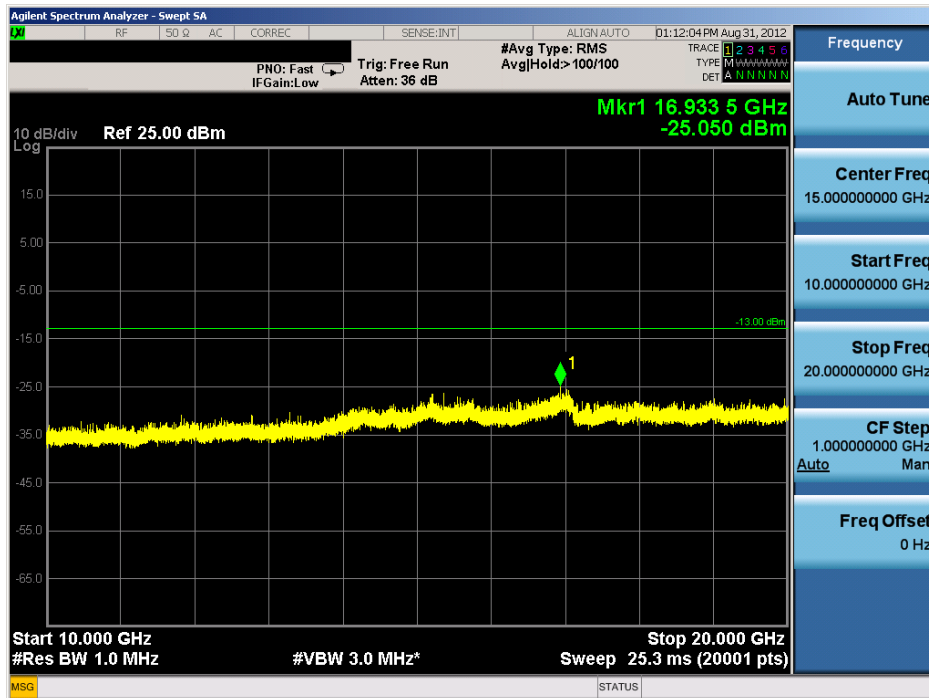


Plot 7-82. Peak to Average Ratio Plot (16QAM - RB Size 75)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-83. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0– Low Channel)

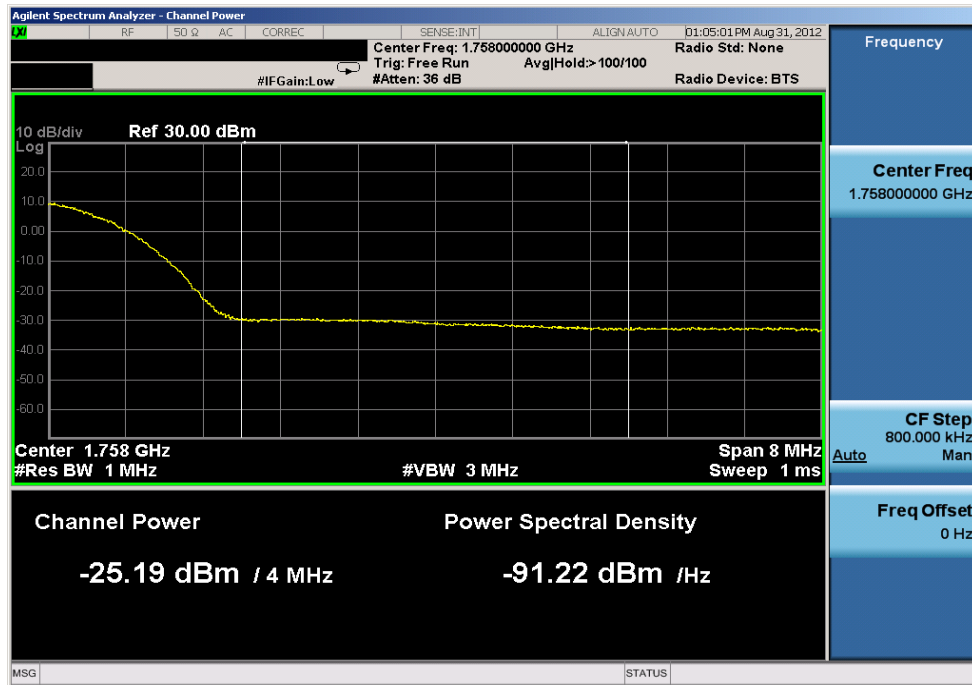


Plot 7-84. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSGHI317	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1208291264.A3L	Test Dates: Aug. 20 - Sept. 7, 2012	EUT Type: Portable Handset		Page 78 of 117



Plot 7-89. Upper Band Edge Plot (QPSK – RB Size 1, Offset 74)



Plot 7-90. Upper Band Edge Plot (QPSK – RB Size 75)

FCC ID: A3LSGHI317		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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